Gleanings in Bee Culture

December, 1946 Vol. 74, No. 12

The Price We Pay

By Ralph W. Barnes

Dead bees at the entrance of a hive containing a colony infected with Nosema

Modern apiculture has a rich heritage of information available that has been handed down by past masters of apiculture, and we acknowledge with humble thanks the great work of the research men in the past, for, thanks to them, there is no Isle of Wight disease in America and European foulbrood has been brought under control. American foulbrood was recognized by them for the serious disease that it is. Yes, we modern beemen can be proud indeed of our pioneer fathers and their exemplary lives are a constant source of inspiration to us.

We can also point with pride to the things that have been accomplished by the modern beemen and research agencies that have contributed so much to aid the apiculturist of today. Modern investigators have provided additional tools that enable the average beekeeper to build colonies of the largest possible population through the use of pollen supplement and correct manipulations. The amount of honey and pollen has been very carefully determined by them and methods of control have been worked out for most diseases which enable us to approach the goal that is in the heart of all beemen—the production of the largest crop possible from each colony of bees. As we progress other problems arise to plague us for as we build larger colonies we are setting the stage to the exact liking of an old and dangerous adversary. Right at the point where our colonies have reached their maximum populations just prior to the first honey flow is where Nosema can get in its most devastating work. A heavy infection of Nosema at this critical point means the loss of all or most of the field bees, leaving only the queen

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and young bees with brood. Much young brood will also be lost where there is a heavy mortality of adult bees because of neglect.

Nosema Strikes in Some States

In the years 1942, '43, '44, and '45, Nosema struck with a great force over most of Iowa, Minnesota, Nebraska, North and South Dakota, and up to Canada. Other states also reported heavy losses from Nosema. Production of honey dropped each year over this area and had it not been for good late honey flows that came after the weakened colonies had again built up their populations, there would have been very little honey produced at all. A very conservative estimate of the production of honey lost in the above area is from one third to one half. This actually meant a loss of millions of pounds of honey each year from Nosema alone which is a much greater loss than ever reported from AFB.

But this is not all of the report upon the deviltry of Nosema. Many queenbees became infected with Nosema and they were prematurely superseded at a time when they are most difficult to replace. This supersedure will occur not only in overwintered colonies but also in package bee queens and queens received by mail. The consequent loss of honey from this effect of Nosema is also very great. Beekeepers are becoming greatly alarmed about this disease.

The years when Nosema was the worst were years that had late cold rainy springs that kept bees confined for long periods. Infection built up rapidly until a large percentage of adult bees became infected in each colony. Careful checks showed that infection ran as high as eight out of every ten bees examined. Bees infected with Nosema do not die at once but become very weakened and at about the time the yellow sweet clover flow starts is when they first begin to die in large numbers. Sometimes they will crawl away from the hive in the morning and die in such large numbers that the ground will be covered with dead and dying bees for 20 or more feet away from the yard. Other times they fly out to the field and do not return. Farmers cultivating corn as much as a mile from the yard reported bees dropping to the ground unable to resume flight. Checks here always show 100 percent Nosema infection. Our own experience for the four years mentioned above was the total loss of the flow from both yellow and white sweet clover in every yard affected while a very satisfactory yield was secured in those yards not badly affected.

Nosema Hits Queen Bees

This past spring of 1946 came on early and warm weather prevailed with rainfall below normal over the central states. Very little trouble was reported from Nosema. The colonies built up very large populations and no loss of adult bees occurred. The early flow from yellow and white sweet clover was very good and a good crop was secured from this source. I feel certain the reason for this is that bees infected with Nosema were able to fly out of the hive and die on the outside, thus the amount of infection was reduced to where it did not depopulate the colonies to a noticeable degree. However, this still left us with the problem of premature supersedure of queenbees. This was very bad in all package bees and in queens received by mail. **One lot of package bees lost 56 percent of its queens from this cause.** These queens all looked fine and would lay nice even brood until they had two or three frames and then come up missing. Careful search in front of these colonies would in most cases locate the dead queen in the grass in front of the hive. **The queens thus located would always show Nosema infection.** Early queens received from the South were highly infected and in our apiaries we gave up all requeening until they had been tested in small nucs before being placed in full colonies. In our overwintered colonies we have a heavy loss of queens from Nosema in some yards and some loss in all yards.

The southern queen breeders and package bee shippers should be made aware of the seriousness of Nosema infection and they should adopt better methods of feeding and a routine practice that will reduce infection. We all should work hard for a larger research program that will help on these problems. Money is needed to enlarge the program of those agencies engaged in apicul-

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How Valuable is the Drone?

By M. E. Oplinger

How many queen breeders look to the drone with the same care they use when selecting the breeding queen? In the breeding of livestock, breeders consider the male more valuable than the female. Dairy men as well as poultry breeders consider the male more than 50% of their herd and flock, and they want to know the performance back of the male side as well as that back of the female side. Then they select a male who has the greatest traits back of him, whether they be for beef, milk, or cream.

The poultry breeders (especially the egg farms) breed from males whose ancestry has the greatest producing line, as they consider the male more than half the flock. When they pick a male for breeding they will always pick one whose ancestry is high in egg production so these traits will be bred into both pullets and males.

Drone More Important than Queen

In beekeeping, most books and writings tell us to breed from our most prolific queens. Most stress is based on the queen and little is said about the male side or parentage. We are also taught to keep only perfect combs in our brood chambers so the queen can lay only worker eggs. Now, when we do this, all the inmates of the hive are direct daughters of the male, are they not? This is direct evidence in bee breeding; the drone is half of the apiary, so when we select our colony to raise drones great care must be exercised in its selection.

During the past two years I have been experimenting with the control mating of queens in its simple form. The Watson method is very complicated and too delicate for the average beekeeper and queen breeder. In nature, mating is a simple thing, and some day we will no doubt be able to master controlled mating in its simple form, so that even a school boy could use it. It is this form I am working toward. During the past two years I was fortunate enough to control the mating of two queens out of 80 that I raised. (This mating was in nature's simple form.) Some will say this is a very small percentage, yet, on the other hand, an apprentice receives very small wages for his work until he graduates into his skill. Even though my pay was unreasonably small, the knowledge acquired in my experiment paid me richly. What a whale of a difference there was in the performance of the two queens in which the mating was controlled. These queens were extra prolific, their brood pattern was perfect, the progeny were great workers, pleasingly marked, extra gentle, and given little to swarming; and they outstripped all other hives in the apiary by more than 75 pounds of honey.

Inbreeding Advantages

The drones I used in this experiment were brothers to these sister queens. This might raise the question of inbreeding. As an example of inbreeding, let's take the experience and data of the Kansas Experiment Station regarding inbreeding of chickens. Their data can be relied upon as experiment stations put out only the truth. They also have the money, equipment, and education to perform these experiments. Thirty two years ago they started their experiment with 12 hens and one male. During all these years no new blood was introduced into this flock. The best young males were selected each year and were bred to their sister pullets. After 32 years the results of this experiment show that the flock has increased their egg production 150%. The stock was larger and healthier and were more perfect specimens, according to judging specifications. This is an example which goes to show that if we pick the finest specimen to breed from, inbreeding doesn't weaken or deform our stock as ma-

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Resistance Does Not Mean Immunity

By R. E. Newell

There seems to be considerable misunderstanding among beekeepers regarding bees resistant to AFB. It would appear that many beekeepers have confused the word resistant with immunity. Because bees from a resistant queen have a high degree of resistancy to infections of AFB it does not give us the right to assume that such colonies will not become infected if they have access to infected honey, pollen, or spores of the disease present in the brood combs or hives.

The larvae from a resistant queen become infected by bacillus larvae the same as the larvae of an ordinary queen in most cases, although I have found that in some strains the proportion of infected larvae in resistant stock is much less affected. In more simple words, a good strain of resistant bees may have a few cells (larvae) scattered through the brood combs become infected with the disease with perfectly healthy brood surrounding them, while a non-resistant strain or stock becomes thoroughly infected almost at once with but few healthy larvae present in the brood combs.

A good resistant strain of bees will clean out the dead larvae in the comb before the cell is capped over, and do not allow the disease to reach the spore stage of development. In other words, the good resistant-strain bees are better housekeepers; they detect the dead larvae and remove and clean out the cells by polishing them so that future larvae may mature in such cells without danger of contamination.

Ordinary strains of bees appear to avoid infected larvae and will cap it over. Such dead larvae soon become actually foul in smell, and the cappings show punctured holes and a sunken appearance.

My first experience with a resistant strain was at Cold Water, N. Y., in 1926, when I found one surviving colony in a yard of some 20 colonies. There were only a few diseased cells present in this colony, and colony strength was up to normal. There was considerable diseased material in the dead colonies present in the yard and all were open to robbing, yet this colony survived.

A resistant queen must be laying eggs and established for a period of three weeks before adult bees of her type mature and emerge from the pupal stage, and another week or two before her bees assume much of the burden of hive or colony duties. Therefore, isn't it too much to assume that by requeening a diseased colony we can expect her to wipe out the disease? Disease resistance is not a fixed trait in a strain of bees at the present time. Breeders are endeavoring to make this a fixed trait by continually breeding a strain with resistance. Perhaps in the distant future beekeepers may be able to purchase queens of this type that may be 100% resistant, but at present we must not expect more than 50 or 75 percent of the queens of resistant stock to show resistance. The degree of resistance in the stock we purchase will vary considerably in the queens, due to the many possible chance matings and the complicated nature of inheritance. We hope that some time in the future a strain may develop that will show real immunity to AFB. In other words, we hope to develop a strain where the larvae do not become infected. As previously stated, I have noticed considerable less infection in some strains than in others, aside from the fact that the strains are better housekeepers and remove infectious material.

There have been many unfavorable criticisms in the bee magazines regarding resistant bees, and I wonder if those who wrote them have given resistant bees a fair trial. I have several strains of resistant bees under trial and purchase a large number each season in addition to my own stock. I do find that under some conditions some strains may be a little more difficult to handle than others as regards excitability and temper, but upon the whole they are not difficult to handle. I usually keep a veil handy in the car when visiting the outyards for sometimes I must work when conditions are not of the best. However, I rarely use a veil, and often only the smoke of a cigarette in opening the hives. Veils are too hot

for comfort to my way of thinking but should be available if necessary.

Regarding honey production, I cannot detect any difference between a resistant and non-resistant strain. We find some poor queens in all strains as regards honey production. It is extremely poor beekeeping practice to tolerate poor queens in an apiary and especially so if queens are to be raised and mated, for the trait of honey production is most important and the drones from poor colonies mating with queens of good stock may destroy the work of years of selection.

A Word about Sulfathiazole

Some work has been done with sulfathiazole as a treatment for AFB, yet resistance is still important if we hope to keep our apiaries clean. I still cannot approve of discarding all of our old methods of apiary management, to rely entirely upon the use of a new treatment. From 1940 to 1945 we were using resistant stock and the escape method (a treatment published in The Beekeepers Item) as a means of keeping our apiaries free from AFB. Colonies found infected with AFB were closed up and allowed to escape into clean hives by wire cone escapes. This meant saving the bees, but the old comb and frames were destroyed, and the hives were disinfected before using again.

With the sulfathiazole treatment as now advocated, the bees are fed sugar solutions with the sulfathiazole and allowed to clean themselves. The favorable comment in the bee magazines would lead us to believe that all our old methods of keeping our apiaries clean were valueless. We hope this method will continue successfully yet any method where the disease germs are not destroyed may allow it to appear again in the hive. Sulfathiazole-treated colonies must be fed regularly in order to keep them healthy, and should we fail to continue such feeding, disease may return.

Colonies headed with queens of a resistant strain rarely become badly infected with AFB, and if a few cells show diseased larvae, sulfathiazole would assist such colonies to clean out the disease before it reaches the spore stage. Colonies of this sort might be considered clean if the disease does not appear again in the brood combs after a full season of broodrearing. Colonies that are not headed by resistant queens and become badly infected so that the combs become filled with AFB in all stages of development, may after treatment with sulfathiazole show no apparent signs of the disease, but the spores of the disease may be present in the hive or supers, and unless the beekeeper continues to feed the sulfathiazole it may appear again as the bees consume the honey from the supers.

We believe it advisable for beekeepers to use caution and destroy badly infected comb if their apiaries are clean except for a small number of colonies, rather than contaminate their entire apiary and be obliged to continue the feeding of sulfathiazole as long as they keep bees. If, on the other hand, the apiary is all badly infected and it is impossible to clean it up by the older methods without great loss of equipment, the beekeeper has much to lose anyway, so the sulfathiazole treatment may be advisable.

Honey from sulfathiazole-treated colonies should not be extracted with honey from clean colonies unless the beekeeper is prepared and expects to treat all colonies in the future. It would appear advisable to the writer to place all sulfathiazole-treated colonies in a separate apiary, and keep all equipment separate, using a small extractor for this honey.

We cannot see where it is possible for beekeepers who sell package bees and queens to ship from sulfathiazole-treated colonies. It might be possible to remove queens from such colonies where the attendant bees in the mailing cages are taken from normal clean colonies and queen cage candy is made without the use of honey, but to shake package bees from treated colonies might invite infection.

We wonder just what beekeeping will be ten years from now if we relax our caution and resort to the new methods. Colonies will produce clean brood as long as we keep them clean by feeding the sulfathiazole, but what about the apiaries that are neglected?

Beekeepers located in areas where AFB is common might find the feeding of sulfathiazole of great value for fall and spring feeding. A

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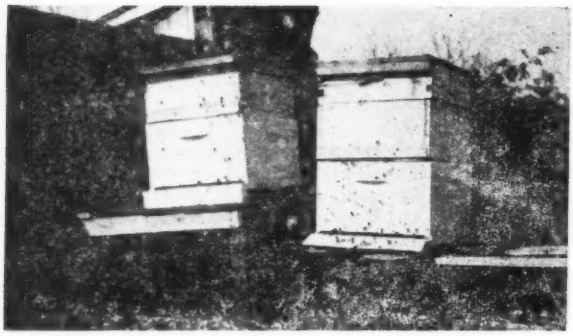


No. 1—March 1

Does it Pay to Keep "Outlaw Bees"?

By J. J. Loskat

I'll give you my experience with two such colonies this summer. One was in a single hive and the other in a hive with a comb honey super but neither had combs nor frames. I could not get the covers off so I started at the bottoms. They came off easier.

I used a saw to reach in to cut the combs loose from the bottoms. When I got the bottoms loose I put the box hive on a regular hive filled with some combs and frames with foundation over an old wooden excluder frame with the excluder wires removed. I did this so they would not fasten the combs to my frames in the lower hive. This was done on February 15th.

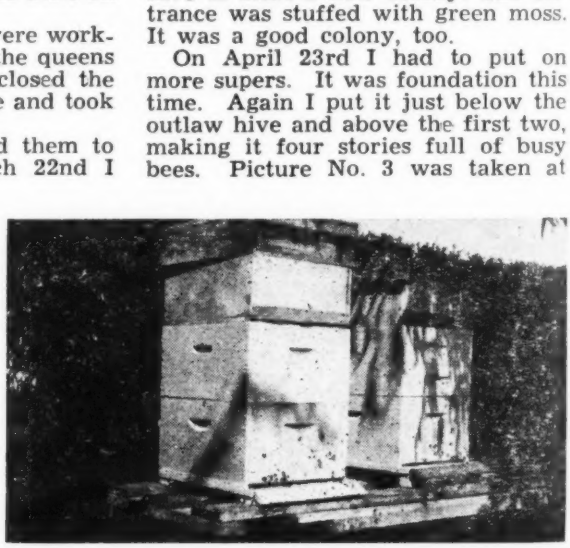
On March 1st the bees were working in the lower hive but the queens had not moved down. I closed the upper entrance at this time and took picture No. 1.

On March 11th I moved them to my home yard. On March 22nd I put on another super of combs, placing it over the bottom hive and below the excluder. The one queen had moved down into the new hive while the other preferred to stay with the old box hive. Picture No. 2 was taken at this time.

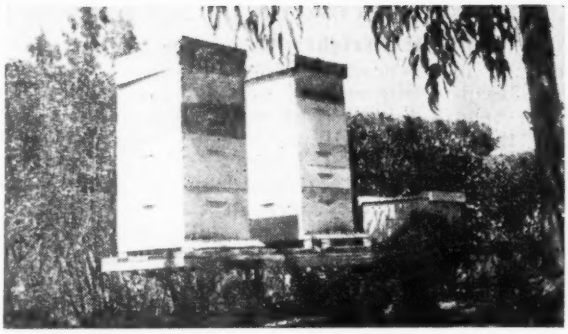
On April 5th they were two very busy colonies. The one queen was still up in her old home. Well, I did not blame her for it was a home sweet home.

On April 10th I took two frames of brood, queen cell and bees from one hive, and three frames of honey, pollen, and bees from the other; the five frames were put into another hive to start a new colony. The entrance was stuffed with green moss. It was a good colony, too.

On April 23rd I had to put on more supers. It was foundation this time. Again I put it just below the outlaw hive and above the first two, making it four stories full of busy bees. Picture No. 3 was taken at



No. 2—March 22



No. 3—April 23

this time.

On May 8th I found the old home-loving queen had moved down. On May 15th I took out eight nice white combs of honey and cut it up into chunk honey.

On May 31 I tried to take off the honey but found that the honey flow had stopped.

Cross Bees Sting Chickens to Death

The hives were so full of cross bees that I could do nothing with them. They were really cross, stinging thirteen of my chickens to death while I was away from home. So I moved them 60 miles to the alfalfa country, honey and all, on that same evening, May 31st.

On June 12th I found the bees very gentle and took off the surplus honey — 125 lbs. from one colony and 100 lbs. from the other one that I had taken the chunk honey from. At this time I did away with the old box hives and put on other supers. On June 15th I took picture No. 4.

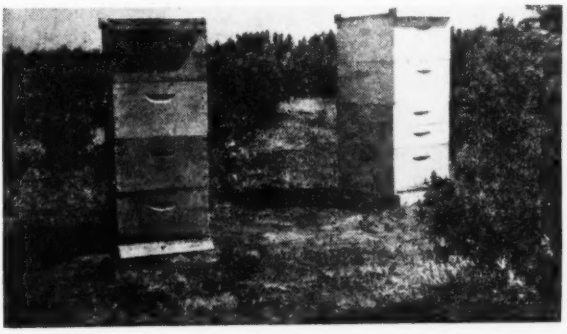
On August 9th I took off 125 lbs. from each colony and cut them down to three stories each.

On October 12th I took off 25 lbs. from each colony and reduced them to two stories full of bees and honey for moving home for the winter.

The bees are not Italians but a small black bee. They produced double or more than my pet Italians did, as my own colonies averaged around 100 lbs. per colony. So give me some more outlaws and I'll keep them away from my chickens next time.

To get the wires out of the frames of nice honey for cutting into chunk honey, just cut the wires at the ends, put the ground wire of your imbedding electric outfit on a pair of pliers, touch the live wire to the one end of the wire in the frame while pulling on the other end with the pliers, and see how easy they will come out.

California.



No. 4—June 15

What is the Bees' Secret of Heat Conservation?

By Percy H. Wright

The article by E. L. Sechrist in the September 1946 issue of Gleanings asks the question: Do the bees, when they succeed in keeping themselves warm on such small amounts of honey, utilize the secret which man has just discovered, the secret of atomic energy?

Years ago, in thinking over the discrepancy—or what appeared to be the discrepancy—between the energy income and outgo in a beehive, I came to the conclusion that it was not the release of more energy than we had any means of accounting for which should attract our attention, but the good insulation that the bees attain on the outside of their clusters.

Two things helped me to this conclusion. The first was my knowledge that in-the-hive temperature determinations, made here in our extreme North, where winters are almost Arctic in their severity, showed that the space between the outside of the cluster and the hive wall is but little warmer than the out-of-doors. This is an argument, of course, for lighter packing, since the heat of the sun is more likely to reach the bees through rather thinly packed hives than through inches of insulation, and since an occasional warming-up to allow for movement within the hives and reclustering near new supplies of stores is more important to the welfare of the colony than the average temperature. This is the same lighter packing which the empirical test has shown to be the more practical, even for our extreme North.

The second thing that helped toward the same conclusion was my special study of insulation, a subject of unusual interest when it is 50 below zero outside, and only a few inches of wall can separate our warm rooms from such temperatures. Anyone would assume that sheep's wool, enmeshing the air as it does, would be at about the limit of possibility for efficient insulation. But rabbit's wool, it now appears, is three or four times as effective as sheep's wool, weight for weight. In the winter of 1942-'43, when it went to 67 below in our district (one of the severest winters on record), I was out every day snaring rabbits to save my fruit trees. I'd look at them, crouching under the willow bushes, immobile for hours at a time, and not even shivering, and wonder how they did it. A man, even dressed in the heaviest clothes he could bear to walk in, would be shivering within five minutes if he stood still. After I read about the extra insulation value of rabbit wool, I understood.

Air Insulation Par Excellence

Mr. Sechrist, it seems, should have made his determinations of the energy loss of a bee colony, not from a hive wall, but from the outside surface of the bee cluster. When the bees are clustered in a compact ball, they would undoubtedly form an insulation material of considerable value, their bodies with appendages being admirably adapted to the enmeshing of air. Just in case anyone does not know it, we may add in parenthesis right here, that, after the vacuum, air is the insulating material **par excellence**, and that the worth of any more solid material is in proportion as it divides the air into tiny particles.

It seems, then, that the supposition that the bees know some secret of metabolism unexploited by any other form of life, and unrevealed by burning and ordinary chemistry, is inadmissable — and unnecessary. Any form of life which knew that secret would have such an advantage over all other forms that it would soon evolve into many species and put all else out of business. It is well to remember, also, that a release of energy of the atomic type from honey is something far beyond anything scientists have performed in the recent atomic research. We have succeeded in breaking up atoms that are of such high nuclear value that they are by nature unstable, but no one as yet has even suggested that the breaking up of the atoms of the ordinary elements of which our earth is made is going to be a discovery of tomorrow, or of the day after. In this "Atomic Age", I guess we have atoms on the brain.

Nevertheless, the chances are that Mr. Sechrist has hit upon a valuable idea in proposing that the energy of

the colony should be preserved by small amounts of artificial heat, thermostatically controlled. At least, we should all like to see experiments performed with such hives, and the data given us. Mr. Sechrist says that his figures are impressive, but does not give us any as yet, although presumably they are soon to come. Indeed, there would seem to be promise in adding to the experiments one in which the heating unit is put right in the center of the bee cluster. That would take some new designing, but no insuperable obstacles seem to offer.

More Experimental Work Necessary

Would it not be possible, also, to determine the insulation value of bees, per inch of thickness, when in the clustered state? Surely, with all the facilities of modern science at our disposal, we could take the temperature at quarter-inch intervals from the inside of the cluster to the surface. If this were done, and the outside temperature also were taken, we could calculate the insulation value of clustered bees in relation to sheep's wool, to rabbit's wool, and to that most frequent of reference material, common boards.

However, many of us may, at the moment, be doubting Thomases in regard to the feasibility of giving bee hives artificial heat. There is one place in beekeeping where the use of artificial temperature control appears to offer the brightest promise. That is in bee cellars as spring approaches. No beekeeper needs facts and figures to prove that immense harm is done to bee hives stored in the cellar when the temperature goes beyond 45 degrees, and brood rearing at last commences in earnest. A refrigeration unit brought down in the cellar for even a few days of use would undoubtedly pay its charges many times over. One would get a great deal out of the comfort, too. Moving bee hives out of the cellar when the bees are too hot and partly clustered on the outside of the hive is no fun. When the bees are cool and quiet, half the discomfort is avoided. There is also the consideration that much less drifting of bees from the weaker hives to the stronger would occur.

Saskatchewan

Bermuda Beekeepers

A group of beekeepers attending a meeting of the Bermuda Beekeepers' Association, held recently at the residence of Captain and Mrs. Ross Winter, Paget East, Bermuda.

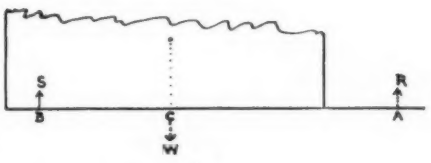
Weighing Hives

By Annie D. Betts, B. Sc.
Editor of The Bee World, Horsham, Sussex, England.

Mr. Stewart Becker's article in your September 1946 issue of Gleaning (p. 470) should encourage beekeepers to weigh their hives. There are, however, some objections to both the methods proposed. Method No. 1 makes help necessary if supers are on—precisely the time when weighing is of most interest. No. 2 has not this fault, but the use of a multiplying factor will not give accurate results. Suppose the hive is weighed once a week, and that the bees store a lot of new honey between two weighings and place it, say, right forward close over the entrance. This will cause the center of gravity to shift forward, and the multiplying factor will have to be redetermined, or the weight calculated will be incorrect and come out larger than it really is.

This difficulty, and also that pointed out by Mr. Becker (that the position of the strips affect the result), can be avoided if we weigh the hive twice. The diagram represents the stand and part of the brood chamber of a hive. Suppose the scales and short strip are placed first at A under the landing board, and the long strip at B back of the hive. The reading R of the scales is noted. Then the strips are interchanged, the long strip coming to A and the scales and short strip going to B. Care must be taken to place each strip **exactly** where the other was—this can be done if there are marks on both sides of the stand at both A and B. The exact position of these marks, and the length of the stand, do not matter; but the scales and long strip must be placed exactly where they were at the first weighing. but interchanged. We now get a reading S on the scales. The distance AB can be measured, and we are then able to calculate the accurate weight of the hive, and also the position of C.

We do not know where the center of gravity is, nor whether the bees have shifted it by redistributing the weight since our last visit. This does not matter. Assume that it is vertically over a certain (unknown) point C. The weight W of the hive then acts through C. Now take moments about B and A in turn. That is, express the fact that the weight of the hive, acting at C on a lever arm BC, balances the scale reading R on a lever arm AB; and similarly for moments about A. Then we have: $R \times AB = W \times CB$ and $S \times BA = W \times CA$. Adding these two equations, we get $(R + S) \times AB = W \times (CB + CA) = W \times AB$, so that, as both sides are multiplied by the same quantity AB, the length of which we do not need to know for this part of our problem, as it cancels out, we can see that $R + S$ is equal to the weight of the hive W.



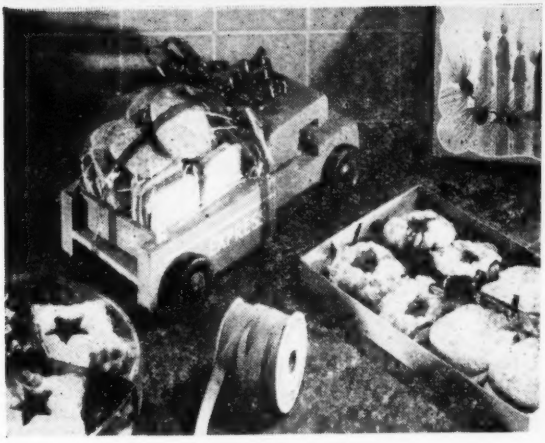
Thus the only necessary condition for accuracy is that at any one weighing the long strip and the scales strip should exactly interchange their positions. These need not be the same at another weighing, nor need A and B be at a given distance from each other or from the ends of the stand. That the stands of hives may vary in length does not matter.

We can find C from the facts we now know. Suppose that $R = 42$ pounds and $S = 57$ pounds, while AB is 22 inches. Then W is 99 pounds, and we get: $42 \times 22 = 99 \times CB$. CB is therefore something under 9½ inches from B, and the bees have clearly stored most of their honey at the back of the hive. Such information may sometimes be of use—for example, if for any reason we want to know where honey is being stored, and the weather is unsuitable for inspecting supers.

I do not like to wear gloves, so I tried all kinds of ways to prevent getting stung. I have a sure way now. All I do is to rub a little cider vinegar on my hands, let it dry and the bees avoid them. — Ludwig Poetzl, New York.

Honey Sweets

By Mrs. Benj. Nielsen



Festive honey cookies make delightful gift for young and old. —Courtesy Kellogg Co.

Making lots of plans for holiday festivities? I hope that you are and that honey is going to play an important part in those plans. The yuletide season, of course, is not properly celebrated unless there are "get-togethers" and that means good eating too. Somehow or other, despite shortages, we manage the standard edibles, or reasonably satisfactory substitutes for them. It is the little extras (without which the holiday season somehow just isn't complete!) that add the festive touches yet are such a strain on the sweets supply of most families. Happily not so for honey-educated cooks!

One of the nicest of the many nice things about using honey is the fact that honey sweets may be prepared well ahead of the last minute cooking rush, and that flavor and texture will even be improved by this waiting period. With the exception of popcorn which is better prepared and eaten soon, the treats I have chosen this month are the reliable tuck-away kind. And before we get down to level measurements and calculated methods of procedure, let me remind you that a small jar of your best honey, or a batch of choice honey goodies, will make a most welcome gift to folks who, unless they are honey converted, seldom have a satisfied sweet tooth nowadays.

Good luck with these festive extras, and the best of the season to all of you.

Christmas Star Honey Cookies

One-half cup mixed candied fruit, ½ cup seedless raisins, 2 tablespoons honey, 1 tablespoon water, and 1 tablespoon orange juice.

Chop fruit and raisins into fine pieces; blend with honey, water, and orange juice. Cook until soft paste is formed.

One-half cup shortening, ½ cup honey. 1¾ cups sifted flour, 1 teaspoon baking powder, ⅛ teaspoon salt, 2 tablespoons water, ¼ teaspoon vanilla, and 1 cup cornflakes.

Blend shortening and honey. Sift flour, baking powder, and salt together and add alternately with water and vanilla to first mixture. Stir in finely crushed corn flakes. Chill thoroughly. Roll dough very thin on lightly floured board. Cut with star cutter. Put a small amount of filling on center of each star. Cover with another star cookie with center cut out, as in illustration. Bake on greased baking sheet in moderately hot oven, 400 degrees F., for 12 to 15 minutes. Yield: 1½ dozen filled stars (3 inches in diameter).

Honey Fancies

One cup shortening, ½ cup brown sugar, ⅓ cup honey, 3½ cups sifted flour, 2 teaspoons baking powder, ¼ teaspoon salt, ⅓ cup water, 2 cups corn flakes, 1 egg yolk, 1 tablespoon honey, and chopped nutmeats.

Blend shortening, brown sugar, and honey. Sift flour, baking powder, and salt together and add alternately with water to first mixture. Mix in crushed corn flakes. Chill. Roll dough to one-eighth inch thickness. Cut with floured fancy cookie cutters—trees, Santas, etc. Brush cookies with egg yolk which has been mixed with honey. Sprinkle with nutmeats. Bake on greased baking sheet in moderately hot oven, 400 degrees F., about 10 minutes. Yield: 5 dozen.

Honey Chocolate Popcorn

Melt in small saucepan 1 square unsweetened chocolate. Add and mix well ½ cup sugar, ¼ cup honey, ½ cup evaporated milk, and a few grains of salt. Cook slowly until sugar is dissolved, stirring con-

(Continued on page 711)

Some Preliminary Observations in the Use of Sulfa Drugs in the Control of AFB

By Prof. F. R. Shaw and Walter Witherell
Massachusetts State College

The use of drugs in the treatment of bee diseases is not especially new. Against the ravages of the brood diseases as well as against those of adults many chemicals have been used. As a rule, most of these materials were proven to be of little value.

In 1942, Haseman and Childers began a study of the effects of sulfa drugs on brood diseases. Other investigators, including Johnson of the Connecticut Agricultural Experiment Station, have conducted experiments and published the data they obtained. On the whole, the evidence appeared favorable.

During the summer of 1946, the authors conducted some tests in Massachusetts. Through the courtesy of Sharp and Dohme, the following drugs were obtained and tested: Sulfathalidine (phthalylsulfathiazol), Sulfasuxidine (succinylsulfathiazol), Sulfanilimide (P-amino benzene sulfonamide). In addition Sulfathiazol (30-80 mesh) was obtained from Merck and Co. by purchase.

In the first set of experiments, it was decided to test the effects of the sulfa compounds in question on adult bees. Accordingly lots of bees were shaken into cages. Each lot was fed 25 cc sugar syrup containing the sulfa compound to be tested at the rate of 0.5 gm per gallon of sugar syrup. As soon as the bees had consumed the medicated syrup they were given water but no additional food. The rate at which they died was then compared with a check colony which had received 25 cc of plain sugar syrup followed by water. The data obtained from these tests is reproduced below:

The death rates appear to be sufficiently like that of the check to indicate that the sulfa drugs did not have any toxic effect at the dilutions fed. In the case of the sulfasuxidine, complete mortality did not result until 24 hours after all the bees in the check lot had died.

Following these experiments some feeding tests were conducted with diseased colonies. In the original plan, only four diseased colonies were selected as test colonies. These consisted of three colonies, all of which had been shaken the previous year. One colony, which had a considerable amount of brood was divided and each half of the original colony requeened. However, on July 25, another colony was found to be diseased and it was included in the test.

Following an examination to determine the amount of diseased brood present, each colony was fed 10 pounds of A 1-1 sugar-water syrup containing the sulfa drug to be tested at the rate of 0.5 gm per gallon of syrup. Following this, the colonies were examined period-

Feeding Tests — Adult Bees vs. Sulfa Drugs

Time in hours	Sulfathiazol	Sulfathalidine	Sulfasuxidine	Sulfanilimide	Check
			Number of bees dead		
24	1	3	0	4	2
48	45	80	4	56	29
72	65	112	44	89	63
96	81	128	55	110	91
120	114	146	70	136	106
144	148	158	83	179	140
168	208	221	115	225	184
192	274	306	157	268	216
216	205	316	178	274	228
	all	all		all	
240	----		185		234
					all
268	----		207		
			all		

ically, the bees were shaken from the combs and the combs were examined for disease. The data obtained are recorded below:

Date Observed and Conditions Found

Treatment	June 11	July 10	July 25	Aug 8	Aug 21	Sept 4	Sept 17	Sept 23
1. Sulfathalidine 10-15% Infection	ok	ok	ok	ok	ok	ok	ok	ok
2. Sulfathiazol 20-25% Infection	ok	ok	ok	ok	ok	ok	ok	ok
3. Sulfasuxidine 20-25% Infection	ok	ok	90 cells ***	3 cells ****	ok	ok	ok	ok
4. Sulfanilimide	10-15%	10-15%	15-20% *	ok	ok	ok	ok	ok
5. Sulfiathiazol	ok	ok	5 cells **	ok	ok	ok	ok	ok

* - Discontinued sulfanilimide treatment. Fed 10 pounds sulfathiazol syrup.
** - Fed 10 pounds sulfathiazol syrup.
*** - Discontinued sulfasuxidine, fed 10 pounds sulfathiazol syrup.
**** - Fed 10 pounds sulfathiazol syrup.

From these preliminary experiments it is obvious that sulfa drug medication can be effective. Of the various drugs tested, Sulfathiazol and Sulfathalidine gave the best performance. In the case of Sulfasuxidine, the picture is not quite as clear as it might be since this colony had more old honey than any of the others. Sulfanilimide failed to reduce the infection.

In all instances where sulfathiazol was used there was a rapid reduction in the amount of diseased brood. It would seem that where properly used, sulfa medication holds forth much promise in the control of AFB.

The sulfa drugs used in these tests were also used in colonies having slight infections of sacbrood. There did not seem to be any noticeable decrease in the amount of sacbrood.

In conclusion, while these experiments are admittedly preliminary, the results obtained appear so promising that it would seem well to record them. The treated colonies will be scrutinized during the coming year to determine if any disease reoccurs. By no means should a beekeeper feel that the feeding of the sulfa drug will solve any disease problem. The details of the treatment must be worked out.

Summary

1. Sulfathalidine, Sulfathiazol, Sulfasuxidine, and Sulfanilimide appear to have no toxic effects to adult bees when fed at dilutions of 0.5 gm per gallon of solution.
2. Sulfathiazol and Sulfathalidine appear to be the most satisfactory of the sulfa drugs tested in these experiments.
3. In all cases, the use of Sulfathiazol, at the rate of 0.5 gm per gallon of sugar syrup, resulted in an immediate reduction in diseased brood.
4. None of the sulfa compounds used appeared to reduce an infection of sacbrood.

A Root Company outyard near Medina. The picture was taken over 20 years ago when we wintered in quadruple cases. Notice the artificial as well as natural wind break.

Pictures Can't Tell the Whole Story

Discussion of the Size and Shape of Hives
By E. L. Sechrist

If we said that the value of a hive should be judged by the results achieved with it, that statement would be open to criticism; for however good a certain style of hive may be, the results achieved with it depend largely on the system of management. Sometimes we forget that point.

This thought came to me when I saw, in May Gleanings, the pictures on page 288 and 289, taken by E. R. Root, of work being done by Dr. Farrar at the United States Bee Culture Field Laboratory at Madison, Wisconsin.

I have used Dadant depth supers for hive bodies, and I have also seen square hives of Dadant super depth in use, and I'm not surprised that Dr. Farrar is intrigued, nor that he gets results with them. I haven't any doubt that Dr. Farrar would get good results with any hive he might use. A good system of management is really something.

When I see pictures like No's. 9, 10, and 11, which show the shallow square hives and frames, I wish that I could see how the queen manages to transfer her activities from one section of the brood chamber to another and I'd like to know how much of her valuable egg-laying time is consumed in crossing and recrossing bottom bars and top bars between the sections. Does anybody really know? Perhaps Farrar can tell us?

In nature, the bee colony tends to keep the brood nest nearly spherical. Within this sphere of brood the queen works from the center to the outside, beginning again at the center when the young bees have emerged from the cells in which the first eggs were laid.

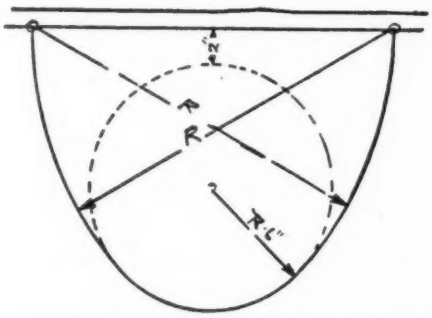
We agree that the optimum hive, **from the viewpoint of the bee,** would provide this 12" sphere, but as beekeepers we have decided against it because we find a hive of those dimensions difficult to handle. I have used 12" square frames in my own apiaries and I have handled frames about 16 inches square and I know how hard it is to lift such frames out of the hive and return them without crushing bees.

Consequently, I have been much interested in seeing shallow hives in use—I saw a queen rearing apiary of 250 colonies entirely in shallow bodies. Yet I am doubtful if they will prove generally successful. Most beekeepers will not, I think, give sufficient attention to practicing a system of management which, like that used by Dr. Farrar, is adapted for the use with shallow hives.

Objections have been raised to the use of hives larger than the Modified Dadant on the score that they are too heavy to handle. However, having used in my own apiaries long hives containing 25 frames of Gallup, Dadant, and Langstroth depths, I doubt if the greater weight of a large hive need be a serious objection provided it is otherwise superior. I saw Sam Lawrence, in North Dakota—or was it Montana—using 14-frame hives with two queens, each in a 7-frame brood chamber. He had 500 of these and I never saw an apiary in better condition, nor with better average production for such a large apiary. Others who tried this two-queen system did not succeed so well. Sam knew how to keep two evenly balanced queens in each hive. He had a secret that most of the rest of us didn't quite get. It worked for him. Why couldn't the rest of us do it? I'm beginning to think that our queens, in general, are not uniform enough to give the results he achieved.

I want to build some hives using a new and larger frame than any now in use. The measurements and design are shown in this crude drawing. Note how this frame, because of its bow shape, can be lifted from the hive without hurting any bees. It may even be allowed to rest on the rabbet at one side of the hive while the other end of it is lifted for inspection. A few bow-type frames were used long ago, but no

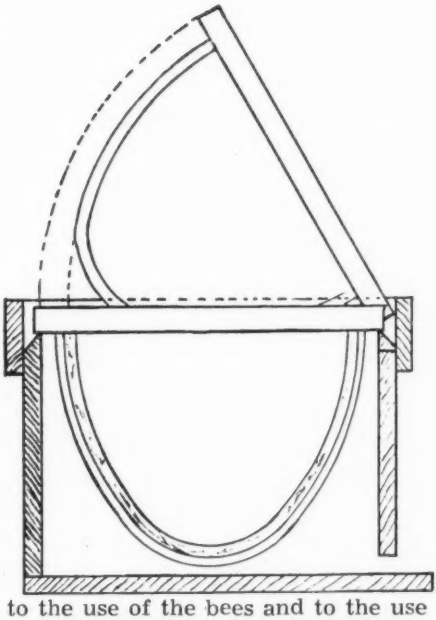
Mr. Sechrist, formerly in the U. S. Bureau of Entomology, Department of Agriculture, with Phillips and Hambleton, has had wide experience with bees and beekeeping before and after he left the Department.—Ed.



one at this time seems to have thought of using them in a rectangular hive, being afraid bees would build comb in the corners—which they are not likely to do. They like this space for clustering in when the colony becomes large and would otherwise be crowded. The round bottomed hives first used did not provide such space.

This frame has been designed scientifically, in harmony with the behavior of the colony and with modern needs. We have learned that we must have big colonies to get big crops of honey. With a hive having 25 of these frames, and using two stacks of Dadant supers on top, with heating and ventilating units installed in some of this corner space, I've an idea we could get surprisingly large colonies and plenty of honey.

No hive now manufactured is well adapted to the use of thermodynamics. We need a hive adapted both



to the use of the bees and to the use of heating units. In this Optimum Hive we may have the answer. I shall try to find out as soon as I can get someone to make 50 of these frames for me. What do you think about it?

P. S. I like Boss Kettering's cynical remark that for most people, "Anything new is perfectly all right as long as it is just like the old way of doing it".

Perhaps there are 2% who dare to try some new way?

Beekeeping Booth, Troop 443. Gray Summit, Mo. Boy Scout Merit Badge Show at St. Louis Arena, May 16 to 18, 1946.

1947 Goals for Colonies of Bees

United States Department of Agriculture

Production and Marketing Administration

Need for Bees: Bees are essential in the food economy of the nation for pollinating more than 50 food, feed, and seed crops. They have become more evidently indispensable in recent years with the rapid decrease in numbers of bumblebees. wild bees, and other pollinating insects, as a result of the stepped-up use of insecticides, and the increased practice of clean cultivation which has destroyed the homes of many earth dwelling insects. The honeybee is the only pollinating insect whose numbers and locations can be controlled by man, and its value as a pollenizer is conservatively estimated at 10 to 20 times the value of the surplus honey and beeswax collected from the hives. The wartime shortage of sweets, however, has lent emphasis to the fact that the annual production of 200 million pounds of honey has been a very desirable addition to our diet. The 1946 honey crop is much below that of recent years, but will be helpful in supplementing the deficiency of other sweets.

Fruit growers, especially in the apple areas, have long been aware of the increased yields which are made possible by having colonies of bees in their orchards, and throughout the commercial apple-producing states many beekeepers receive substantial remuneration for placing colonies of bees in the orchards during fruit-blooming time. Seedsmen are becoming better acquainted with the pollinating value of honeybees. The continued per-acre decline in the production of legume seed has developed such a serious problem that seed producers have insisted that the Department carry on research projects in this field. Such investigations, in fact, are being planned for the coming season.

As other pollinating insects continue to decrease, more and more colonies of honeybees will be needed to make up for the loss of the pollination previously accomplished by these other insects if the output of many seed plants, and of numerous fruits and vegetables, is to be maintained without an increase in their acreage. The present suggested average increase of 6 percent over the 1946 colony output is an attempt to partially make up for the pollinating loss of the other insects, and to slightly build up bee colonies, which are adequate in most rural areas.

Suggested Distribution of Colonies. The accompanying tabulation shows this proposed increase broken down by states. Because of the expanded acreage and the prospective good total seed production of many gume areas than was done a year ago. Instead, more attention has been given tothe extent to which the various states built up their colonies of honeybees last year, their average yields of honey per colony, and the apparent dollars-and-cents profitableness of colonies of honeybees in the several states. The suggested distribution of colonies by states in the West is rendered the more difficult because of the widespread extent of migratory beekeeping in that area, and the fact that in some districts pollination is almost entirely depenlent upon bees that are trucked in from other states.

Recent experimental work at the Regional Bee Culture Laboratory at Madison, Wisconsin, has indicated that with the better management of colonies outlined by the Laboratory, all states would find it profitable to maintain more colonies than are indicated in the proposed goals.

Summary: A goal is proposed of 6,134,000 colonies of bees for 1947. This represents 6 percent more colonies than are indicated for 1946—the same percentage gain that was made this year over last year's colony count. If more bee supplies are in prospect and if labor is more available than a year ago, as now seem possible, the brisk demand for honey would make possible a still greater increase in bee colonies than has been suggested. Until a more adequate appraisal can be made of the extent to which the demand for bees for pollination purposes is being satisfied, however, it is suggested that the bee population in 1947 be held down to 6,134,000 colonies.

COLONIES OF BEES: Suggested State Goals for 1947

State	1947 Goal Number Colonies	Number Colonies Indicated 1946	Number Colonies 1941-1945 Average	% 1947 Goal is of: Indicated 1946	% 1947 Goal is of: 1941-1945 Average
	Thousands	Thousands	Thousands	Percent	Percent
Maine	8	8	6	100	133
N. H.	4	4	3	100	133
Vt.	9	9	8	100	113
Mass.	22	21	17	105	129
R. I.	1	1	1	100	100
Conn.	19	18	18	106	106
N. Y.	230	209	201	110	114
N.J.	29	28	26	104	112
Pa.	192	181	183	106	105
Ohio	387	352	304	110	127
Ind.	189	180	156	105	121
Ill.	236	221	202	107	117
Mich.	238	222	181	107	131
Wis.	227	212	186	107	122
Minn.	329	299	248	110	133
Iowa	282	256	202	110	140
Mo.	200	190	158	105	127
S.Dak	20	18	17	111	118
Nebr.	64	58	48	110	133
Del.	3	3	3	100	100
Md.	28	27	24	104	117
Va.	154	148	127	104	121
W. Va.	135	129	104	105	130
N. C.	177	177	173	100	102
Ky.	220	214	162	103	136
Tenn.	187	187	166	100	113
S.C.	67	66	57	102	118
Ga.	244	230	185	106	132
Fla.	201	191	164	105	123
Ala.	208	196	146	106	142
Miss.	83	78	61	106	136
Ark.	91	85	72	107	126
La.	86	81	63	106	137
Okla.	64	60	44	107	145
Tex.	292	273	208	107	140
N. Dak.	25	23	22	109	114
Kans.	65	60	42	108	155
Mont.	56	52	41	108	137
Idaho	170	159	135	107	126
Wyo.	44	41	34	107	129
Colo.	79	75	69	105	114
N. Mex.	19	18	17	106	112
Ariz.	69	65	74	106	93
Utah	55	53	51	104	108
Nev.	14	13	14	108	100
Wash.	70	67	64	104	109
Oreg.	72	68	57	106	126
Calif.	470	461	443	102	106
U. S.	6134	5787	4987	106	123

From the Field of Experience

An Efficient Wax Melter

By B. M. Crawford

Fig. 1 shows the convenience of the capping knives, the cappings falling on approximately ten square feet of melting surface, the frame rack adjacent to the extractor.

As the honey and wax are melted it passes into the basket shown in Fig. 2. The basket captures all of the slumgum allowing the honey and wax to escape and be trapped into separate places; the honey is allowed to escape from the collecting box at a slightly lower level than the wax escape; the wax riding on the honey and, being lighter, builds up and escapes into a suitable vessel forming a cake as shown ready for the market.

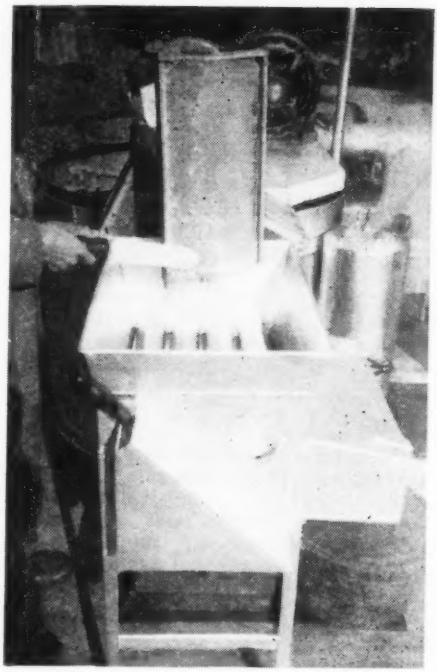


Fig. No. 1

Fig. 2 shows the flues through which the steam circulates without pressure, making the device safe and fool proof, as there can be no explosion from steam pressure.

The slumgum basket is emptied about twice daily but before removing the basket with slumgum we allow the honey level to rise so that almost all the wax is escaped and there is a small amount of wax that remains in the slumgum, so small that it hardly pays to rerun.

Fig. 3 shows the general set up with the frame rack extending from the melter. The melter is heated by an ordinary two burner camp stove

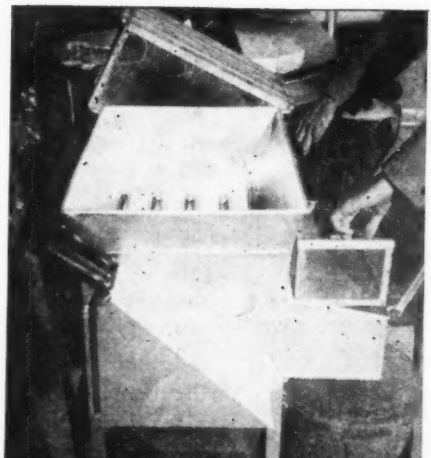


Fig. No. 2

where natural gas or flame gas is not obtainable. The amount of heat is adjusted to accommodate the speed of the uncapper as the case may be.
California.

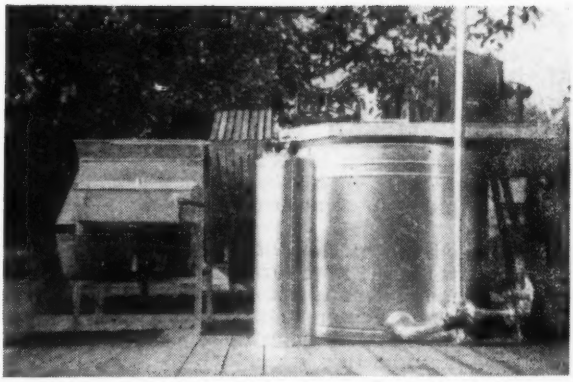


Fig. No. 3

Late Flow in Southern Florida

By D. O. Wolfenbarger
Associate Entomologist

During the last of September and in early October there was a characteristic hum of bees overhead, to the right and to the left, everywhere, yet not localized at any spot. This hum is symptomatic of a honey flow in progress. Great volumes of Spanish needle, **Bidens,** have been blossoming and are believed to account for at least part of the honey flow. Although the Spanish needle blossoms the year around, there are more blossoms during certain seasons than others. The current honey flow, apparently a rather heavy one, is reported by local beekeepers as very unusual for this time of year. All available storage space in most hives is reported to have been used.

Another swarming season, furthermore, has been observed. Swarms, apparently "natural" ones, sent forth to reproduce the race in the usual manner, began issuing the last week of September and continued through the first week in October. Experienced local beekeepers claim this is also a very infrequent occurrence. Hence, beekeepers in the more northern states and in the provinces may be interested to learn that outdoor bee activities continue during the fall and early winter season on our continent.
Florida.

Opossums in Bee Yard

By Joseph Norbud

There are about 30 hives of bees in my yard and until this year I have not had any bee robbers. Mr. Skunk started it all so I set a few traps. In a few days I had to go to the hospital so I didn't get a chance to visit the yard. When I came home I went right to the yard. Mr. Skunk got caught and broke loose but a few days later I got him in another trap so I thought that my trouble was over, but I left the traps for a few more days. At the same hive I caught a big opossum. A few days later another opossum was caught in the trap where the skunk broke loose. Have you ever heard of anybody being bothered with opossums? Do you believe that they will eat bees the same as the skunk? Well, if they don't eat bees I don't know what they were doing as the traps were right at the hive entrances.
Pennsylvania.

[Have any beekeepers been bothered with opossums? We haven't.—Ed.]

Who Cares How it Works, If it Works?

Extracts from F. S. Houston's letter of Oct. 31. 1946

"I am thankful that we have had Mr. R. E. Foster as State Bee Inspector of Florida. He has been my friend for many years, and he is an honest man. I have seen him burn bees and helped him burn bees, and I have seen tears in his eyes when he had to burn up some beekeepers' bees.

"I worked for 11 months making experiments here in Florida with Prof. Haseman's treatment, and then I called in Mr. Foster to look over the results. In the meantime, we had been having the inspectors inspect treated colonies in other yards, not knowing that they had been treated, and we always got a clean bill of health on them.

"After Mr. Foster saw what I had done, he went back to Gainesville and started on 20 colonies using the same treatment as I had used. The result was that he recommended to the Plant Board within six months the use of sulfathiazole in treating AFB in Florida. As you know, Mr. Foster is rated as one of the leading men today in bee disease control."

"Sulfathiazole makes the spores of AFB incapable of reproducing and that is what makes it work.

"With all the above, I still do not see why weshould be so worried to know how it works, as long as it works. When the doctor says you have one chance in a hundred to live, and it all depends on one little pill, DO YOU SUPPOSE YOU OR I WOULD ASK THE DOCTOR HOW THE PILL IS GOING TO WORK AND WHAT DOES IT DO? If you should recover, would you still ask the doctor to explain how the pill worked? I know that Mr. R. E. Foster and I would not ask, or even care as long as the work was completed O. K.

"Right here in Tampa I have 25 colonies of bees. Six months ago I had only 5 colonits here. They were all so rotten with AFB that they should have been buried—in fact, they were nearly 100% infected. They smelled so bad that the neighbors complained when I brought them in from the country. (I had to borrow these diseased colonies as I did not have any of my own.) I obtained permission from the State Plant Board and Mr. Foster to run an official experiment on three of these colonies using the Haseman treatment. Mr. Foster inspected these colonies at the start and said they should have been burned but to go ahead. In 30 days they were State inspected again and were clean. But this is not all. Besides, during the summer, I split and resplit the colonies until I now have 25. The increase is worth $300. But even this is not all. Last week I took off from the bees and sold to a bakery $60 worth of honey, and they are still making honey. as we have a flow in town all the year. (This is Florida.) With careful managtment, I will be able to make this into 50 colonies in the spring and make a crop of orange honey and then a crop of palmetto. I inspected the brood chambers of these bees before taking off the honey, and they are clean and a beautiful sight. In the meantime the bees had to draw all the combs for the increase and they did a beautiful job."

Florida.

Second Glances

By C. M. Isaacson

"As is the queen - - - - -" That, in four words, is the substance of Mr. Shoemaker's article (page 593). And it contains much of truth, as all of us have found out many times. Even under unfavorable conditions, some queens produce those brood filled, bee filled colonies that gather the real crop of honey. Just a comment, too, on the author's amazement at the activity of an occasional newly emerged queen. I rather think that this is due in most cases to the individual being held in the cell much beyond her usual time of emergence—at certain times the workers will do this. And clipping queen's wings—perhaps confidence

is the main essential. I have fine scissors for the purpose but must confess they are seldom used. The hive tool or simply the nails on my thumb and forefinger serve.

Five hundred colonies in one place! (page 596). That reminds me of a yard I saw some years back in a sweet clover location—325 colonies and a well over 200 lb. average for the season. But 160 acres of solid clover were not uncommon then.

Drouth resistant honey plants certainly could fill a real need during some seasons (page 597). The record of the plants reported by J. E. Johnson is promising.

Notebooks are worthwhile—if only for the interesting items that can be gleaned from them later. But they also can be of definite value in pointing out things to do and things not to do. It is true that it is not wise to space sheets of foundation too far apart when given to the bees. Better use ten frames and remove one as they are drawn out—as Mr. Tontz says on page 598.

Honey as medicine has not been very well recognized officially heretofore. Dr. Schiller's report from Austria on its value as a heart stimulant is therefore doubly of interest. As he concludes, there may be much yet to learn as to the whys and wherefores of the value of honey.

Theft of honey is not tolerated by a powerful colony of bees, as A. Brugger's item from Switzerland tells. The moth he mentions must be a powerful insect to be even able to force its way into a colony. I do not believe, however, that the propolis barrier at hive entrances is related especially to this one enemy but as a "cold weather doorway" and a general guard against all intruders when the colony is less active (page 602).

"Bee-cause". Could not this one word be an answer to much of our questioning as to just why bees react differently at different times—and perhaps too as to the "notional" ways of the human race (yes, I'm a traitor, Mr. Morehouse, and include the male side, too!)? I guess that is a big reason why a good case of bee fever is so hard to cure—the unexpected can always be expected. But somehow we do manage to get crops of honey (despite being more convinced yearly that we know far too little) — and I suspect most of us even enjoy a bit having the household furniture moved around (no, don't confess it in the wrong place!) (page 604).

Two more sulfa reports (pages 606, 611). Mr. Reese gives one of the few from-the-fields warnings we have had in some time. It is all too true that we are prone to report successes—forget failures. On the other hand, Allen Latham's reputation thruout the years as a careful reporter is too well known to dismiss his words—and success. With this question as with others down the years, time will have to be our teacher, be the tuition high or low.

No communists (page 615). Of course, Miss McIntyre is correct—as she points out, the honeybee colony is a family—not a nation, and there is no cooperation between these "families".

Introducing queens by use of peppermint odor (pages 624, 634) is perhaps a novel plan, but surely a simple one, and one that should work. But is it solely the odor that makes for the success of the method, or the treatment given the bees as well? Wetting them down well would alone tend to cause less "flight" and consequently less danger.

Kill bees, or feed? .With present price for packages, and every prospect of these prices going higher, it may be wisdom to save more colonies than the high price of honey might seem to indicate. Especially is this true when one considers the difficulty at times of securing bees, and the uncertainty of shipping dates, satisfactory queens, etc (page 636).

Packing bees in asphalt paper is becoming more and more popular (page 630). But I believe it will be found more economical in paper, packing material, and time to pack at least in pairs instead of singly. More in a pack do not always succeed as well unless provision is made against drifting.

High prices — low prices (page 632). Editor Root's admonition is one to heed. We need to support every means for keeping up consumer demand for honey, lest prices slump as they did after the last war. It may not do so now—it need not if we keep our heads and do not ruin the market built up these past years.

Minnesota.

Keeping Bees in Northern New York

By Benjamin W. Lacey

I have kept bees for six years and am satisfied on a good many points about wintering bees, having learned the hard way. I had no luck wintering bees the first few years. This is a very cold climate. The temperature goes to 30° below a few days every year and some years to 40° or better below. For the past two years I have wintered 18 colonies with no loss whatever.

In order of importance I list the following points:

(1) Bees enough to cover 20 Standard frames at 60° F. (northern bees.)

(2) 80 lbs. honey.

(3) Queen that is a good one.

(4) Top entrance, to be sure the bees can **get out** if weather permits, and equally important to be sure they don't suffocate from dead bees or ice.

(5) At least 6 or 7 empty Standard combs at the bottom of the hive for "clustering". I keep a chaff box with vents atop each hive the year around. I do not believe in side packing if the hives are painted a dark color. I believe that the heat of the sun in an ordinary winter is of as much benefit as the packing that shuts out the sun.

On no account will I ever pack a hive stand on the ground. It furnishes perfect conditions for mice, and in the spring keeps the bottom board wet and cold long after an empty stand would have dried out.

Give a bottom entrance so that the bees can clean out the dead ones handier; though I think the bottom entrance is of very much less importance than a top entrance.

As for dryness within the hive, which is of course important, it would seem that the total area of the entrance, or entrances, is the main factor. though a top and bottom entrance is a little more efficient system. Of course the damper the outside air the bigger the entrance should be—within reason.

New York.

Tampa National Convention

Make Reservations Early

It seems probable that the National Beekeepers' meeting at Tampa, Florida, January 13 to 17, 1947, will have a large attendance. We suggest that you secure your hotel reservation as soon as possible. The Hillsboro Hotel will be headquarters for the convention. The following list of hotels and rates are furnished by A. D. Hiett, Chairman of Program Committee of the Southern States Federation:

Hotels		Singles	Doubles
Bay View	DT	$2.00 to $3.00	$3.00 to $5.50
Casa del Sol	DI	2.50 & 3.00	3.50 & 4.00
De Soto	DT	2.00 to 3.00	2.50 to 3.50
Edgewater	SUB	No Singles	3.50 to 5.00
Floridan	DT	3.00 to 5.00	5.00 to 10.00
Hillsboro	DT	3.00 to 4.00	5.00 to 8.00
Knox	DT	1.25 to 2.00	2.00 to 3.50
Lafayette	DT	2.00 & 3.00	3.00 & 3.50
Mirasol	DI	2.50 to 5.00	3.50 to 7.00
Hudson Manor	DI	1.50 & 2.00	2.50 & 3.00
Park	SUB	1.25 to 2.50	2.00 to 4.00
Puritan	SUB	2.00 to 2.50	3.00 to 4.00
Tampa Terrace	DT	3.00 to 5.00	5.00 to 10.00
Thos. Jefferson	DT	2.00 to 4.00	3.00 to 6.00

Key:
DT—Downtown—All hotels within radius of 3 blocks from center.
DI—Davis Islands—in Bay ten minutes bus ride from center.
SUB—Suburban—Within five or ten minutes from center.
NOTE: Double up when possible, as the number of single rooms is limited.

Panel Heat in the Bee Hive

By M. I. Taylor

Wintering and packing have been a subject of acrimonious discussion among beekeepers, and summer ventilation has been a problem as well. Proper evaluation of the principles of heating and ventilation as published by the American Society of Heating and Ventilating Engineers in the 1945 guide is the key to the problem.

Panel heat was used by the early Romans in their baths and by rich Koreans in their spring rooms and it is the principles of radiant heat more properly called panel heat, and ventilating which the bees use in their hives summer and winter.

Beekeepers understanding these principles can help or hinder the bees in their pursuit of honey. Too often most of us have hindered the bees. Following out the theories of foremost authorities who recommend insulation, hives with 8" tops and 4" bottom boards were built, but this was not the answer to winter losses in Virginia. Ventilating holes in the uppermost hive body with reduced entrances allow some of the moisture to escape and is of more help in wintering than is packing.

The principles of panel heat are brought into play in the beehive. The temperature of the air in a hive is of secondary concern. The bees use air in a hive in winter as an insulator and as a conveyor of moisture. They also use air in the summer as an insulator and conveyor of moisture. Bees are cold blooded animals. Where many of the foremost authorities on bees and bee behavior have gone overboard on insulation is in concluding that the bees have to maintain the air temperature of the hive, and in not taking into consideration the fact that the "heat loss" of a cluster of bees is determined more by the difference in temperature, not of air, but of surfaces, i. e., the surface temperature of the walls of the hive. The bees have two variables. They can increase or decrease the amount of heat inside the cluster and they can control the amount of heat loss by increasing or decreasing the size of the cluster.

In a panel heated home, comfort is a matter of controlling the heat loss of the body by controlling the surface temperature of the floor, walls, and ceiling, the temperature of the air being of secondary importance. The reason for this is that man, being a warm blooded animal, produces about 500 units of heat per hour called btu's which if thrown off too fast causes a person to feel cold, and if not lost fast enough to feel overheated or hot. Man uses 100 btu per hour for internal functional energy, 100 btu per hour is lost by skin evaporation and exhalation, 100 btu per hour by surface convection to the surrounding air, and 200 btu per hour is given up by the body by radiating heat to the floor, walls, and ceiling.

To get back into the hive a principle of physics is that a hot object loses heat to a cold object. In the case of man 50% of the body heat is lost to the surrounding cold surfaces and only 25% to the air. In the case of the cluster of bees the surfaces adjacent to the cluster are not cold walls but are honey in the comb or cells of wax with motionless air, acting as insulation. The best example of the insulating value of air is the vacuum bottle with its dead air space which holds heat for hours. The only air, which in itself is a poor conductor of heat, coming in contact with the cluster would be the little bit at the ⅜" spaces between the combs, thus bees have been making use of the principles of heating and ventilating for centuries which we are just beginning to understand and to evaluate.

Virginia.

Honey Sweet Potatoes

By Mabel Oldfield

Two lbs. sweet potatoes (red meat), pare and quarter large ones, half medium sized ones, cover with water, add 1 teaspoon salt and boil until tender. Then drain and add one half cup of strained honey and add two tablespoons butter; cover and set back on a low fire for 5 minutes, or until a rich syrup is formed around them.

Ohio.

[Mrs. Oldfield says this is her own creation and that her men folk like it.—Ed.]

From North, East, West, and South

SOUTHERN CALIFORNIA, Nov. 2

Weather, as we find it in Southern California November 2, is most ideal insofar as comfort is concerned but the country is dry and no fooling. Usually we have had rain enough by this time to start the grass. While the records have credited us with one inch for '46-'47, it all came in such small dribbles that it hardly laid the dust. Usually we have considerable rain in November which always puts hope and courage in the beekeeper's heart as well as those who till the soil.

Crop and Market: So little honey remains in the hands of the beekeeper that it is hardly worth mentioning but those who are fortunate enough to have any can set their own price and no questions asked.

Miscellaneous: Bees, generally speaking, are reported in good shape for winter and barring the usual losses by queenlessness should come through in good shape. As we have mentioned several times in these items during the past 25 years, it takes a heavy super of honey to winter a colony and get it ready for the early spring flow be it orange, sage, or whatnot. The colony that has to gather the honey to build up for the early flow never gets the amount like the one that has the stores at home.

Beekeepers are busy repairing, painting, and snugging things up for the spring work. Wonder if the prospects of 15-cent honey has anthing to do with it?. Combs that were held over and not used on the bees seemed more susceptible than usual to the attacks of the wax moth. The beekeeper is a little like the citrus grower—he must be constantly on the alert for new enemies that seem to come from time to time.

One of the large operators whom we know quite well sold his colonies during the orange honey flow. He reserved the honey which he was allowed to extract, delivering two-story ten-frame colonies, selling all surplus supers and combs separately. This arrangement proved satisfactory to all parties concerned. Occasionally we hear or know of a beekeeper who sells his whole outfit and is willing to call it a day and sit on the side lines and let the rest of the world go by. Men in other lines of endeavor do it—why not the beekeeper?

These notes are being mailed from San Luis Obispo near the ocean and some 250 miles from our home in Corona. Coming here we passed through black sage, purple sage, eucalyptus ranges, as well as the great lima bean growing district of California. These are all good honey sources in our wet seasons but with a light rainfall like the present the yield is very light.—L. L. Andrews, Corona, Calif.

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NORTHERN CALIFORNIA, Nov. 6

Weather: The weather for October was noted for several days by strong north winds, and by our first frosts of the season in valley locations. Snows fell in the high Sierras and in all northern California the colonies began to arrange their nests for the winter period. Green grass was beginning to show again after the first rains of the season but to date rainfall has been rather scarce. The cool north winds reduced humidity and increased the danger of grass fires. Some rather large scale fires have swept over thousands of acres and serve beekeepers as reminders of the importance of protecting apiary sites from fires and later from floods.

Honey Plants: Not much can be said about honey plants at this time. The bees are still bringing in some pollen but the nectar flow in this area is definitely over. Honeydew from oaks was said to have been heavy this year and made a welcome fillup for those with light colonies. Practically all of the honey has been extracted and sold except for those who were behind in their work. This

is one year in which it paid to be slow at extracting the late summer and fall crop because of the sharp swing upward of the honey prices.

Miscellaneous: And speaking of honey prices! A walk through a market in Oakland last week revealed extracted honey selling above section honey with creamed honey topping both by a few cents. Pound jars sold from 44 to 55 cents, sections at around 47 cents and creamed honey in paper cartons as high as 59 cents. In the same market, the same container of creamed honey sold at 46 cents in the grocery department, a difference of 13 cents in about 50 feet. Five pound containers varied from $1.50 to $2.32.

Honey is getting to be more plentiful in the stores at these prices, either because more is being offered or less is being sold. But when one considers the fluctuation in prices generally, honey does not seem too far out of line. The sad part of it is that it is selling to the consumer at from two to three times the amount received by the producer, who gets most of the blame for high prices.

Reports of bee losses from chemical poisoning are just coming in and, like the Republican vote, will be heavier than usual. Killion of Illinois says that he is in one of the greatest tomato growing sections of the country. Can he beat 22,000 acres to which at least 1,500,000 pounds of calcium arsenate was applied?—J. E. Eckert, Davis, Calif.

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TEXAS , Nov. 1

Weather: Rainfall during October for most of Texas was normal. This with the large accumulation of water from September put plants in a rather luxurious condition. The temperature was normal with considerable cloudiness.

Plants and Bees: Fall flowers were more abundant than in many years. The bees gathered considerable pollen and accumulated ample pollen reserves. The honey flow during October was rather light in most areas and broomweed with its profusion of blooms was particularly disappointing. Most fall honey was gathered earlier with a fair yield from native shrubs soon after the first fall rain. Most of our native shrubs respond quickly to rainfall, with a blooming period of short duration. Continued rain produces plant growth rather than additional blooms. Brood rearing was heavy during the past two months and most colonies should have a large over-wintering population of young bees. While the hives are not crammed with honey, winter stores are ample generally and the colonies fully normal. In a few areas feeding will be necessary. Seedlings of early spring blooming annuals, principally mustards, are becoming evident and these are an important source of early nectar and pollen. The recent growth of native trees and shrubs offers some promise of a bloom next year.

Honey Crop: It is interesting to note from the U. S. D. A. honey report that the honey crop of Texas this year is 43% above the 1945 crop. This is considerably greater than earlier reports from the producing areas indicated. It is partly due to an increase of 18% in the number of colonies this year. While the yield per colony is 12% greater than in 1945, it emphasizes the part played by sweet clover with a record crop to offset the smaller yield from other major sources. The current year's yield from cotton, long one of our major honey plants, was especially low. In spite of the low yield from cotton there was some poisoning of bees in the cotton area.

Miscellaneous: Some producers were short of supers and other bee supplies this year, and it is hoped that these supplies will be available in larger quantities next year. Queens are in good demand this fall and many queen breeders were sold out in September. Queen and package bee shippers are preparing for an increased output next season. With the labor problems largely solved, queen and package bee production should more nearly approach the expected demands. The increase in honey prices since the decontrol of honey seems justified considering price increase of other commodities. It is expected that honey marketing and prices will remain orderly. In connection with the decontrol of honey it should be pointed out that the government limitation order of June 18, 1942, restricting the amount of honey that may be used in the manufacture of food products, is still in effect.—A. H. Alex, San Antonio, Texas.

KANSAS, Nov. 8

Weather: A summer drouth prevailed in southeast and central Kansas. In the central area this prevailed from late spring and on into the fall. The effect of the drouth in the southeast and south-central part of the state was extremely severe, affecting the plants to such an extent that trees were in more or less wilted condition. Rains beginning in August in the north-central and eastern portions of the state changed conditions for the late summer and fall. The rainfall in southwestern Kansas during the fall has been abundant. Moisture conditions throughout the state during the fall have improved, except in the south-central area.

Plants: Following the improved growing conditions provided by the rainfall in August and through September in certain areas, such as the Arkansas River Valley and north-central Kansas, a weak smartweed honey flow prevailed. With the excellent moisture and plant growing conditions this fall, honey plants are in excellent condition to go into the winter, and the soil moisture is adequate to carry the plants through the winter under normal moisture conditions. There has been no killing frost in the Manhattan area up to the present time.

Condition of Bees: Colonies of bees have built up to good strength with the minor honey flows from smartweed, late alfalfa, sunflowers, and others. Colonies are exceptionally strong in numbers where there was sufficient honey left on the colony in addition to that coming in from the field. Colonies from which too much honey was taken did not fare as well. Colonies in southeastern and south-central Kansas are in rather poor condition due to the dearths of nectar flows. There were 51,000 colonies of bees in the state in 1945, with the United States Department of Agriculture asking for an eight percent increase for 1946, or 54,000 colonies. The beekeepers of Kansas certainly "pushed over the top" in attaining the figure of 60,000 colonies of bees, or about an 18 percent increase.

Honey Crop: The state as a whole had an average to better than average crop of honey, except for the southeast and south-central parts of Kansas. Prospects were excellent in the early spring, but by the middle of June these prospects had disappeared. The average colony production for the state was 56 pounds, as against 51 pounds in 1945. There was a total of 3,360,000 pounds of honey produced in the state this year.

Market: The demand for honey far exceeds the production. It is hoped that some of this demand will continue after the price structure levels out. It is hoped that beekeepers will not become too greedy and set too high a price on their product to the detriment of their business in a few years.

Miscellaneous: There was an excellent bee and honey exhibit at the Kansas State Fair at Hutchinson during the third week in September. There was much interest on the part of spectators in the honey exhibit and the uses of honey. There was a bee exhibit at the Kansas Free Fair in Topeka during the second week in September, which was the first exhibit since the beginning of the war.—R. L. Parker, Manhattan, Kansas.

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MICHIGAN, Nov. 9

Conditions: Bees and stores vary in quantity from apiary to apiary. Some colonies light as a feather, full of bees, others heavy, some short on bees and honey too. Never a dull moment in 1946. Every week every beekeeper hoped and prayed and the bees even worked a lot, but the scale hive just stood "at balance" and the honey market soared. Very tantalizing, 30 cent honey, especially when you haven't had a good crop in six years. Never was the beekeeping barometer so low, never did so many beekeepers ask themselves "Am I a sucker? What kind of business is this, that makes me leave 50 pounds of honey on the hive in fall, feed 10 to 20 pounds in the spring and start feeding all over again the next fall?"

Many thousands of colonies will starve this winter. Many beekeepers will drop out, have already dropped out. Legume acreage is low and will be for a few years.

Farmers, even specialists, say "Yes, we must have lots of honey bees", without ever giving a thought to what said bees are going to live on. Michigan State College is organizing a project to obtain cooperation of Departments of Farm Crops, Dairy, Animal Husbandry, Entomology, Horticulture, Conservation and Experiment Station as well as the Division of Forestry, Parks, and Land Use of the State Conservation Department, to increase the use of legumes, for forage, for cover crops, for insect control, for wild life food and cover and for bee pasture. Much good would result.

Honey is almost extinct. Demand is active. Yet we hear of no plans for expansion. Some outfits are changing hands. Some beekeepers are going to take bees South for the winter. Everyone is groping for a formula to make a dollar from beekeeping before it is too late.

Much ado about sulfa. Good reports are heard. Time will tell about the kick-backs. Never in our memory were the minds and the purses of Michigan beekeepers in such a foment.—R. H. Kelty, East Lansing, Mich.

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FLORIDA, October 29

Weather: In central and south Florida the days have been about as hot during October as they were in July and August, but the nights have been cooler. North and west Florida have had fine fall weather. Rainfall was about average for October.

Bees and Fall Honey Plants: Bees are in good condition in all parts of the state. The fall honey flows are about over in north and west Florida. In the central and southern parts sunflower and flat top goldenrod are yielding some nectar now.

Honey Crop: While it is true that beekeepers in Florida have gathered a good crop of honey in 1946, this does not assure them a good harvest in 1947. We all know as a rule that a large honey crop is followed by a short crop the next year. I hope beekeepers in other states will not get the idea that all they have to do to get a good crop of honey is to move their bees to Florida. Judging from letters I have received the past two months, it appears to me that almost every beekeeper in the northern states wants to come to Florida this winter and bring his bees with him.

The best honey producing sections of Florida are well stocked as a result of the movement of bees from other states to Florida. Florida beekeepers are being crowded out of locations that they have had for years. If this migration continues to increase, some action will have to be taken to stop it.

We are expecting to meet many old friends at the meeting in Tampa the week beginning January 12, 1947.—R. E. Foster, Gainesville, Fla.

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PENNSYLVANIA, Nov. 2

Conditions: Along with many other states, Pennsylvania has passed through another off season in 1946. Spring came early and was unusually warm as it was in 1945. Bees gathered considerable nectar from maple and early fruit bloom. Apple trees also blossomed early but by the time the bees had worked only a few days on them in central Pennsylvania, the weather turned cold and from then on food supplies dwindled. Alsike clover seemed to be very scarce and white clover looked poor. The freezing and thawing of late winter followed by the dry weather in April and May left the clover in poor condition. The clover flow turned out to be even worse than the condition of the plants might indicate. Almost no surplus clover honey was obtained. Bees continued on a starvation basis most of the time when the clover flow should have been in full swing. Food reserves became so low that many colonies died of starvation late in June. To make matters worse, swarming began in April and continued through the entire period of scarcity and then extended into September.

Colonies that swarmed early survived because a small surplus of honey was stored during the period that the colony could not rear brood. Sumac, basswood, and some clover provided a short two weeks honey flow in early July. The surplus from this flow amounted to only about 20 pounds per colony.

Honey Crop: In mid-September goldenrod yielded nectar as it seldom does in Pennsylvania. Supers began to fill with a light yellow honey of fairly good quality. To this was added some nectar from red clover. Red clover remained in unusually good condition until much later this season than normal. These two plants, goldenrod and red clover, continued to yield freely for two weeks when a week of inactivity came, to be followed by a short heavy flow from wild aster and silverrod.

The final analysis for the season indicated a surplus crop about 25% below that harvested in 1945. If I recall correctly 1945 was also a rather poor season.

The favorable fall flow put the bees in excellent condition for winter and reduced the necessity for feeding to a minus quantity. Most hive bodies are now well filled with honey which was not the case last fall. Colonies are going into winter with at least an average of 15 more pounds per colony than they had a year ago. The heavy brood chambers indicate that we might expect a rather hard winter for 1946-'47. Brood rearing continued at least two weeks later this fall and many young queens are still laying in the last of October.

Miscellaneous: Beekeepers of Pennsylvania tried to meet the increase in numbers of colonies requested by the Federal Department of Agriculture but lack of supplies limited their activities in this direction.

The present honey crop is disappearing rapidly with but little of the 1946 crop left. One of our largest producers has only 1800 pounds left from a crop of approximately 35,000 pounds (Oct. 28). Prices have advanced sharply with five pound pails selling from $1.25 to $2.50, mostly around $1.75. It is hoped that the future sales of honey will not be affected adversely because of the present high prices. A few bitter complaints have been heard from customers who were regular users of honey in past years. —Edwin J. Anderson, State College, Pa.

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BRITISH COLUMBIA, Nov. 2

Conditions: Diversity of conditions within the bounds of this province are well indicated by varying honey yields reported from the different sections for 1946.

Average yield for Vancouver Island colonies was down to 20 pounds with double that amount reported for the Fraser Valley. The Northern Interior had a disappointing season with only light yields from alsike clover. Conditions were more satisfactory in the Southern Interior where alfalfa is the main source of nectar. Present prices being paid for alfalfa seed have encouraged its production in some sections with price ranging as high as 31½ cents per pound for uncleaned seed at the farm.

Honey Crop: Total crop of honey for the Province is estimated by the Department of Agriculture at one and a half million pounds.

Customer demand for honey is stronger probably than at any time during the current sugar shortage. Possibly the fact that the sugar coupon, good for but one pound of sugar, will purchase four pounds of honey, may have something to do with this situation. It cannot be denied that honey buying habits are being built up that will go a long way to solve any marketing difficulties that might arise in post war years.

Locally the past season was exceptionally good for comb honey production with very few sections of light weight. Comb honey sections sell on sight being free of coupon restrictions and it is surprising to us that so few beemen have gone into this branch of honey production.

Miscellaneous: Granted that with extra labor costs and the extra equipment called for in producing comb honey sections, one can pick up a greater profit on extracted at present prices, but there is great personal satisfaction in putting up a nice crop of comb sections.

Where regular requeening is practiced bees have gone into winter quarters in good strength and au-

gur well for 1947 crop prospects.

In most parts of this province bees can be successfully wintered, and will have a considerable advantage over imported packages in building up for orchard pollination and making the most of the spring honey flow.

Removal of both the 10% War Tax on imports and of the adverse exchange rate should stimulate importation of package bees provided shippers will hold their prices to a reasonable level.

The annual meeting of the Canadian Beekeepers Council is being held this year in Vancouver, Nov. 18 to 21, in the Hotel Vancouver. This will be a most important meeting. with the administration of advertising fund raised by means of a voluntary tax on honey containers as a chief concern of the delegates. —G. F. Pearcey, Kelowna, B. C.

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ONTARIO, Nov. 6

Weather: The law of averages is again apparent in present weather conditions in this part of Ontario. The summer was well below average in temperature and August in particular was the coolest month on record, resulting in an almost total failure in the buckwheat honey crop.

September, October, and November to date have been just the opposite—warmer than usual, with an unusual amount of sunshine. It was ideal weather to get the bees ready for winter and to do the heavy feeding that was necessary. On page 626 an editorial heading states that "some bees may starve if not fed". Insofar as our apiaries are concerned this might be paraphrased to read "**all** colonies will starve if not fed". With nearly 30 apiaries in four counties, possibly not more than a dozen or so colonies had enough honey for winter stores, and as intimated in November Gleanings, we let a number perish. Without doubt this is the worst record we have chalked up in the past 60 years and we hope that there will be no repeat performance in the near future.

In my last notes, in speaking of methods of foulbrood treatment, the statement is made that our present system sees lots of recurrences. Of course, every colony burned is a sure cure for that unit in the apiary, but what is really meant is that many recurrences happen in apiaries where colonies have been burned.

Clover Conditions: Although clover has been badly treated by the long drouth that visited many localities this past summer, ideal weather for the past six weeks or more has helped, and what clover is left looks very nice. Drouth was particularly bad in Victoria County, a district that has of late years been our best honey producing area. Many ranches are near our bees in that county, and most of them were full of white Dutch clover. As this clover is shallow rooted it will not stand a hot dry August and very little clover appears on these ranches at present.

As to honey markets: Demand is keen with almost no honey to supply that demand, and it is almost impossible to get a pound of honey in Toronto, a city of a million or more. People are applying for honey, carrying a certificate from a doctor to back up their claims for their need. This is a condition that the writer has never heard of before here in Ontario.

Miscellaneous: On page 609, November Gleanings, Propolis Pete says that beekeepers that work bees without protection are not "very smart". The writer makes no claim to being smart, but we never used much protection except on rare occasions, as we always found a veil obscured the vision more or less and it was always too hot on a hot day.

But as to gloves, really they are out of the question for extensive work in an apiary and we never used them and did not care to have helpers use them in our apiaries. For years previous to our boys getting old enough to work with the bees, we annually had helpers supplied from many places here in Canada and some from the Old Country. After a few days' initiation never a one used gloves and did not want to use them. They are cumbersome and a nuisance in every way. For many years we acted as an inspector having as many as eight counties under our jurisdiction. In the worst sting-

ing apiaries we ever visited, we found the owner bundled up in a heavy jacket, long gloves, etc., and in his work smashing bees all the time—about the best treatment to get the bees in real good stinging humor.

Personally, we have found that stings in moderation hurt one's health not at all, and whether or not it is simply imagination, we always feel better in the spring after we have had some stings.—J. L. Byer, Markham, Ontario.

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UTAH, October 3

Weather: The weather this fall has been very cold and damp. Early cold spells alternating with warm spells retarded somewhat the last minute storage of honey and also caused a decrease in the amount of stores already put away.

Condition of Bees: Bees in general in this part of the country are very low on stores. In some cases this has been caused by lack of honey producing plants and other natural conditions. In other cases, extraction has been carried on to such an extent that the bees are very low on stores. Numerous beekeepers are at the present time feeding their bees.

Miscellaneous: The use of DDT indiscriminately by the farmer without cooperation nor notification of beekeepers in the vicinity has caused a considerable decline in the bee population. This in addition to natural causes has caused a great drop in the number of pounds of honey produced.—Blaine C. Taylor, State Bee Inspector, Utah.

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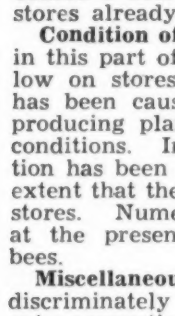
MAINE, November 12



Weather: A long period of rainfall from spring to midsummer, combined with a very cool and cloudy August, resulted in an almost total failure of the goldenrod flow in much of central and southwestern Maine. Much honey from the clover was removed and sold by late July. When the anticipated goldenrod flow failed to develop, many bees were extremely low in stores at the beginning of winter. In some areas a flow from asters and goldenrod developed in late September and early October, resulting in an improvement of winter stores.

Fair to good crops were reported from Aroostook County, in the northeastern part of the state. Summer showers were more abundant and the clover honey flow was not cut short so quickly by dry weather. A yield from goldenrod was also secured here. In a few places an excellent clear mild honey was gathered from crimson clover in September. This clover is grown as an annual green manure crop in a rotation for potatoes by a few farmers. Killing frosts this year held off later than usual and the sunny days in September enabled the bees to work the blossoms.

Bees and Plants: Although the last two years have been unfavorable for high yields of honey, it is possible that weather will improve in 1947. The soil conservation program with its emphasis upon increased use of lime and the growing of more clovers is to the advantage of the beekeeper. A gradual change in the agriculture of Maine is apparent with more emphasis upon milk production and the raising of livestock. The value of clovers in highly fertilized pastures is now widely recognized. **Clover, milk,** and **bees** to maintain setting of clover seeds in grassland farming, is a combination hard to excel in agriculture.—C. O. Dirks, Orono, Maine.

A Double Queen Cell

By Dr. J. E. McKee

Early this summer I found two double queen cells in a colony of vicious hybrids. The cells were large and perfect, the top half being oval and the bottom half straight like a section of a pencil. The sections were separated by a heavy shoulder of wax, and each contained a normal queen of the same age.

Alpine, N. Y.

Beekeeping for Veterans

(Taken from Federation News Letter for October, 1946.)

More veterans are interested in beekeeping now than a year ago. During the two years that the Veterans Rehabilitation Committee has been functioning, one thing has become quite evident. On-the-job training is the most satisfactory method for the veteran to learn whether or not he wishes to take beekeeping seriously.

Since our last report, some adjustments have been made in on-the-job training programs, and the following will bring both beekeeping and veteran up to date on the subject.

A veteran desiring beekeeping training must construct a training program and then refer the program to the State Department of Public Instruction for approval. It would be wise for the veteran to first get in touch with an established commercial beekeeper who would be willing to assist in drawing up a training plan. Extension Apiarists in State Agricultural Colleges will be glad to work with veteran and beekeeper in drawing up a suitable program.

Fundamentally, the training program should include:

1. Title and description of the specific job objective for which the veteran is being trained.

2. Length of training period. This should not exceed two years in overall length.

3. Schedule of work to be learned listing various tasks to be performed with approximate length of time to be spent on each task.

4. Wage to be paid trainee at the beginning, at each successive step in the program, and at the completion of the program.

5. Number of hours of **supplemental** instruction required.

6. Entrance wage or salary paid by the establishment to the employees already trained in the kind of work for which the veteran is to be trained.

After the completed program is referred to, and approved by, the State Department of Public Instruction, a copy of the training program is sent to the Veterans Administration Regional Office for approval and administration.

When the veteran is in training he is required to submit weekly progress reports pertinent to his training. The employer submits monthly wage statements covering salary or compensation given the trainee for working on the job. This salary or compensation, together with the monthly subsistence payments of $65.00 for a single man or $90.00 for a married man must not exceed $175.00 per month for a single man or $200.00 per month for a married man. Therefore, when the salary of a single veteran exceeds $110.00 per month, his subsistence payments are reduced proportionately.

Supplemental instruction may be provided through an approved Veterans Institute or approved institution, such as college short course or conferences, or regular classroom work. The instruction in this case must be given by qualified instructors who are approved by the State Department of Public Instruction. The amount of this related training is determined by the needs of the course and the goal set up in the training program.

Hours of training on the job is determined by the establishment. A minimum of 36 hours per week of on the job training is required for full-time training consideration.

The above steps are applicable to the non-disabled veteran who derives his benefits under Public Law No. 346, 78th Congress.

The disabled veteran who is drawing a pension from the Government for service incurred disabilities, derives his benefits from Public Law No. 16, and may be entered into training by a different procedure.

The disabled veteran, upon his own request, will receive advisement and guidance from Veterans Administration Office nearest him. As a result of this advisement, the veteran will select a vocational objective. The Veterans Administration will then assist the veteran in locating an appropriate facility in which to train the veteran for his objective. When the proper training facility is located, an agreement is made between the establishment and the Veterans Administration. At this time a wage scale and training program are drawn up, similar to that previously mentioned. This training program may be established

(Continued on page 708)

The meeting of the Empire State Honey Producers' Ass[illegible]d on Aug

Just News

PROGRAM
National Federation of Beekeepers' Associations and Southern States Beekeeping Federation in Tampa Florida, January 13 to 17 1947

Monday — January 13

10:00 A.M. National Federation Executive Committee. Resolutions Committee and Clearing Committee—Joint Meeting.
Apiary Inspectors of America

7:00 P.M. Southern Federation Registration
Committee Meetings

Tuesday — January 14

9:00 A.M. Apiary Inspectors of Southern Federation —tentative

9:00 Invocation

9:10 Presenting the Keys
Governor Millard Caldwell of Florida

9:30 Southern Conference Welcomes the Federation—Lynn M. Dewey

9:45 All Organizations Behind the Federation—Glenn O. Jones

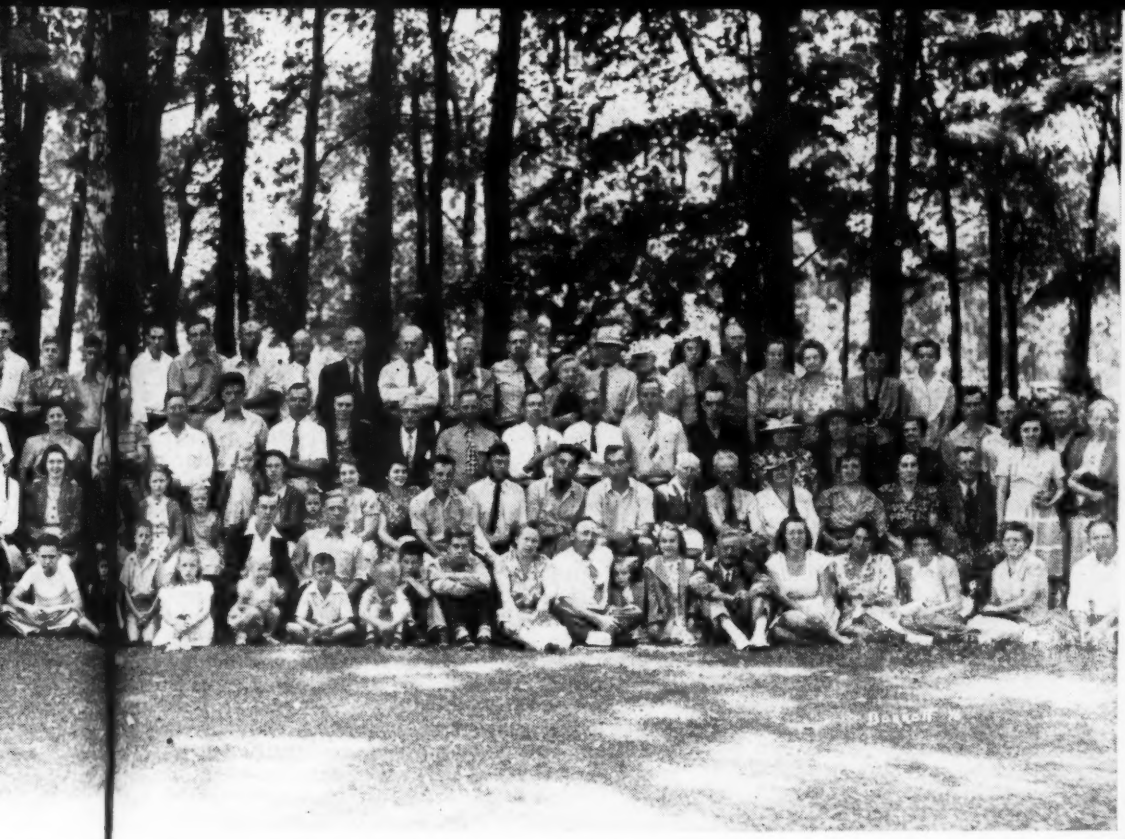
10:00 Artificial Insemination and a New Breeding Program—W. C. Roberts—Dr. L. R. Watson

10:30 The Need for Queen Rearing Research — Oral Symposium
E. C. Bessonet, Leader
Jas. I. Hambleton
Walter T. Kelley
Jay Smith

11:30 Nutritional Needs of a Package Colony—Dr. C. L. Farrar—Dr. W. Whitcomb

1:30 P.M. Selecting the Best Breeders
Oral Symposium
John C. Hogg, Leader
H. C. Short
N. C. Jensen
M. S. Fortune

2:30 Earlier Package Colonies with Pollen and Added Stores
Oral Symposium



ducers' Ass'n on August 10, 1946, at Taughannock Falls, was a big one.

G. H. Cale, Leader
Dr. C. L. Farrar
Jack Deyell
R. H. Kelty

3:30 Better Directions for Installing Packages
Alan Eby—Eugene D. Cutts
—N. C. Martin

Wednesday — January 15

9:00 Apiary Inspectors of America
National Honey Association

9:30 National Beekeepers' Auxiliary.

9:30 Southern Federation
Shipping Queens and Bees by air
W. W. Owen—G. G. Puett

10:30 Reports of Committees
Election of Officers

10:30 Bee Supplies Industries Assn.
National Federation
Honey and Pollen Plants Committee
Beekeepers' Rights Committee
Honey Grades Committee
Research Committee
Clearing Committee

1:30 National Federation Program
Invocation
Committee Appointments
Report of Secretary-Treas.

2:30 President's Address
John W. Holzberlein, Jr.

3:00 Marketing Outlook for 1947
D. B. Bradshaw

3:30 Supplies and Equipment for 1947
Alan Root

4:00 Current Government Rules and Regulations
Harold J. Clay

8:00 American Honey Institute — Board of Directors
American Beekeeping Council
Resolutions Committee
Clearing Committee
(Joint meeting latter two)

Thursday — January 16

9:30 National Beekeepers' Auxiliary

9:30 Research Committee Report

9:45 Immediate Prospects for Improved Stock
Commercial Breeder — J. W. Newton
Research Breeder — Otto

(Continued on page 700)

Annotations

Dr. A. Z. Abushady, Professor of Bacteriology, Farouk University
General Secretary, "The Bee Kingdom League", Egypt.

Bees and Fruit Culture: According to to D. C. Peattie (Nature Magazine, Oct. '46) in his charming article on pollen, it is not possible for a fruit tree without this wonder dust of nature to put forth any fruit. Such a traditional statement is now out of date and equally, I am sorry to mention, is the statement that bees are essential for fruit culture. For sheer scientific honesty we must admit the facts of parthenocarpy. This has been induced by Y. Asami in kaki by mere spraying of hormones. Another example is the work of V. P. Sokolskia who, as a result of pistil removal in flowers of citrus species, gave us fruit that was larger, sweeter, seedless, less acid, more tender, and containing more vitamin C than ordinary fruit, the outcome of pollination. It seems to me logical to envisage, within 25 years, in such scientifically progressive countries as U. S. A. and U. S. S. R., that bees in many instances will be parasitising in orchards and farms mainly on nectar income. Their need will be felt only for such seed crops as the legumes (clovers, lentils, beans, faseolos, peas, etc.) gossipium (cotton, opra or bamia, etc.) and cucurbits (cucumbers, melons, marrows, etc.). I would refer my colleagues, members of the Bronx B. K. A., and others, who showed interest in this fascinating subject, to my learned friend Dr. A. Gawadi at the research station, Brooklyn Botanical Gardens, and would suggest inviting him to deliver a lecture on parthenocarpy.

Encouraging Honey Production: For years to come, honey production, like sugar production, must be placed on an emergency basis. It is a great mistake to consider honey a mere luxury and place obstacles in the way of manufacturing hives and beekeeping equipment (p. 624), particularly as the U.S.A. honey crop for 1946 is estimated as below normal. In my capacity as official delegate to UNO, I have done my best amongst fellow delegates to draw their attention (particularly of members of the economic and financial committee in which I participate) to the urgent need of encouraging honey production throughout the world. The universal food shortage and the starvation (principally in China) calls for this measure amongst others. American beekeepers should press their case more strongly and lend their full weight of support to the National Federation in its endeavors. It is not too early to organize for the 1947 crop, and the removal of honey price ceilings alone will not develop the industry. With inertia, the present golden opportunity is threatened to be lost.

Strange South African Bees: With the keen interest of the Russian government and Russian institutes in advancing all sorts of scientific research, I am not surprised at their extensive study of all varieties of honey bees, since as far back as 1930 my friend Prof. Alpatov was working on the biometry of the Egyptian bee (Apis fasciata). But what surprises me is the variety of South African bees now engaging their attention. According to the "Natal Mercury" of August 10, 1946, quoted by the "Scottish Beekeeper" for last October, Dr. R. H. Dibley, a well-known beekeeper of Capetown, has recently accompanied three colonies of a strange variety of South African bees sent to Moscow by air via London. One of the special characteristics of this type of bees, found in the coastal belt of the Cape Province, according to the reporter, is that the workers lay fertile eggs as well as the queen bee! We shall await with interest the report of the Russian Academy of Science, at the same time hoping similar investigation would be undertaken by one of our universities.

Culling Poor Queens: Mr. E. L. Sechrist, distinguished joint author of "Scientific Beekeeping", advises, as a new way for culling poor queens, the early spring stimulation of queens in weak lots by placing their hives on electrically heated units and giving them cakes of pollen mix. (Am. B. J.. Oct. '46, p. 423). A good queen is expected to respond quickly within a few days, having been hampered before by unfavorable conditions, whilst poor queens are supposed to be those that do not respond. The idea should appeal to

(Continued on page 713)

Live and Learn

By Propolis Pete

Before a man has kept bees for any length of time, that is if he has any contact with other beekeepers or reads bee books and magazines, he hears about the horrible ravages of bee diseases. If you pay attention, you will find that it is practically impossible to keep bees without contracting many terrible maladies, any of which can wipe you out before you know it.

I am not very well qualified to discuss this subject because I must confess at the start that I have never had an opportunity to gain first hand experience. Once or twice at bee meetings, combs have been brought in to show the scales of American and European foulbrood. Also, twice now, I have been present when slides were made and I have seen the foulbrood bugs swimming around under the microscope.

The last thing I want to do is to belittle the fear of disease, because there is enough of it around, and you might catch something in your own bee yard. If you, not having any fear of it, become careless, maybe you will find a very nice mess on your hands one of these days. But, from what I have seen so far, I am not going to give up keeping bees because of it. Here again, let's use a little common sense.

I said above that I have never had any experience with it. Maybe that is not the exact truth. I had several scares with sacbrood before I fully recognized it, and in 1941 and 1942 I had an experience that may have been a serious attack of something. I had 18 colonies in 1941, and without warning a tremendous number of bees covered the ground, crawling about trying to fly but unable to leave the ground. I examined them thoroughly, watched closely and looked up every possible source of information (excepting the right one) but could not find any descriptions that fitted my symptoms exactly. The crawling bees looked perfectly healthy—they just couldn't fly. After a few days, everything was normal excepting that the hives were considerably weaker. They went into the winter in what was apparently good shape, but I didn't get any honey to speak of.

The next year, 1942, they made a fine start. That was a drought year with us and practically all flowers dried up. Also, a nearby farmer, whose fields adjoined my land, used an airplane service to dust his potatoes. Two days later I found the same condition that I had found the year before, with the exception that this time some of the colonies were nearly wiped out. I immediately jumped to the conclusion that they had been killed by dusting. It didn't dawn on me to send a few to the State Apiarist for analysis, consequently I cannot say for sure that they did die of poison. The year before there had been no airplane dusting.

At any rate, that year I went into the winter with four weak colonies. That's all I had after several unites. All four died during the winter and in the spring of 1943 I didn't own a bee. Since then I have been building back within the limitations of my time, the war, shortages, transportation, sugar, and other handicaps. I have been using the same combs and bodies, and have not had a recurrence of the trouble.

After all this time to think it over, now I don't know whether it was a terrific jolt of Nosema or really the airplane dusting that killed them off. Maybe it was the combination of drought and overstocking, because, believe it or not, I think that 18 colonies of bees is too much for my location.,

Anyhow, my bees are perfectly healthy now, and regardless of what I find in the spring, they went into this winter in better condition than ever before.

It looks like I have picked a subject too big for this month's Gleanings, so I will take it up from here next month. But in the meantime, just let me say this: Respect disease in your bees, but don't fear it. If you listen to the calamity howlers among your bee acquaintances you'll get the impression that a beekeeper's life is just one foul brood after another. If things were as bad as they claim, there wouldn't be a bee alive today. And bees have been on this earth for millions of years, with all of these diseases, parasites, or whatever you want to call them.

Editorials

Bee Hive Production Jeopardized Bee hive production is still jeopardized by government limitation orders intended to channel building materials to home construction. The removal of price control on lumber, no doubt, in the long run, will stimulate the production of the grades and thicknesses in short supply needed for bee hives. This, however, will be of little immediate help to the bee industry unless Civilian Production Administration controls are removed or altered on bee hive lumber.

As mentioned in editorials in the October and November issues of Gleanings, the Civilian Production Administration by various orders in behalf of the Federal Housing Administration have required the lumber mills to set aside from 50% of its monthly production of some grades to 100% on other grades. On October 28th all Shop grades of Western Pine were prohibited for use on any item other than mill work construction, as defined in the order. This order included the 4/4 Shop Ponderosa Pine used for many years for bee hive supers, frames, and covers.

True, other grades and varieties not already fully restricted to the building trade may be used. Few, however, make a satisfactory bee hive. Eastern and southern lumbers generally are too narrow for hive bodies and the moisture condition found in most bee hives, caused by nectar evaporation as well as outside weather conditions, make splicing two or three narrow boards impractical. Also few lumbers will permit nailing without splitting when reduced to the small size required for inside furniture in a bee hive.

Aside from all of this, the principal difficulty lies in the fact that these government C. P. A. housing orders shut off the bee supply manufacturer from 90% of his normal sources of supply and in time of shortage this procedure really amounts to a government order limiting bee hive production to 50% of last year's production.

No order so drastic was issued at any time during the war years when this country's very existence was at stake and it seems short-sighted to hamper the beekeeping industry now as does the Civilian Production Administration Limitation Order L-359.

The importance of the beekeeping industry through the pollination of food crops by the bees has been well recognized both in and out of government and it is no time to permit the industry to go backwards for lack of replacement equipment. The lumber needs of the beekeeping industry are relatively inconsequential but the value of the industry to general agriculture is tremendous.

It is our belief from discussion with a number of bee supply manufacturers that if the C. P. A. order stands for another three months, less than 50% of last season's production of bee hives will be possible for this season now almost upon us. This is hardly consistent with the United States Department of Agriculture's requested goal for 1947 of an increase of 6% in the number of colonies in the country. It is our belief also that to permit the bee industry to continue to produce will not materially affect the veteran's housing program, for 4/4 Shop Common grade of ponderosa pine is used very little for the critical mill work items such as doors and windows. A veteran who is also a beekeeper recently pointed out that he can hardly hope to buy a home if he is not permitted to purchase bee equipment needed to carry on his business. While no statistics are available on this subject it is safe to assume that veterans' requirements for bee equipment compared to total production of such equipment are as great as the proportion of new homes built that actually end up in veteran hands is to the total number of homes built in the country.

Why State Bee Inspectors Should Grant Permission to Try out the New Sulfathiazole Treatment Under Reasonable Restrictions

While it is admitted that scientific tests with the use of sulfathiazole, under laboratory conditions, on the virus of AFB are negative, yet, under hive conditions, reports are almost universally favorable. Re-

search work in the field should continue but always with the knowledge and consent of the state bee inspector, where the disease has been found. In some cases bee inspectors are not allowed to permit the new treatment to be applied, and require that all infected colonies shall be burned. This seems like a waste of good property and unless the new treatment can be applied under hive conditions a large amount of dissatisfaction will arise. Two states have already indicated their approval of the new treatment of feeding water-soluble sulfathiazole in syrup. While there may be a recurrence, all cases so far reported would indicate that they may yield to further feeding.

It should be borne in mind that the burning treatment does not affect a complete clean-up in all cases, esecially when the colonies are burned in the middle of the day, hives and all Bees returning from the field will then drift to other colonies carrying infection wherever they go. It has already been reported that skunks will dig up the buried material after the fire, exposing the honey not completely heated, to the robber bees.

Gleanings believes beekeepers need bee inspection work no matter what the treatment may be. It is important that each state knows where the treatment has been applied. All colonies treated should be marked. In view of the enormous loss where bees, honey, combs, and all infected material have been burned in the midst of a honey flow, it is very important to test out this new treatment in the hope that this enormous loss may be averted.

Apiaries Seven Miles Apart A beekeeper in one of the midwestern states writes that there is a movement on foot in his area to prevent beekeepers from locating apiaries less than seven miles from established commercial apiaries. This would seem to be a thin or inadequate coverage of bees for maximum pollination. It is assumed, of course, that swarms of bees would be found in trees, buildings, or such other places where so-called wild bees establish homes and these bees, together with small back lot apiaries, would help to insure the pollination of fruits, vegetables, and legumes where commercial apiaries are seven miles apart.

Even though it has been demonstrated in an experiment carried on by one of the bee culture field stations a few years ago that bees in an isolated location will actually fly eight miles in search of nectar and pollen, that does not mean that they ordinarily fly that distance from their hives. It seems to be the general consensus of opinion that bees do not travel more than one and one half or perhaps two miles for nectar and not that distance if the pasture is abundant close to the apiary.

A distance of four or five miles between commercial apiaries seems to be about right. If apiaries of 100 colonies each were spread four miles apart over any area this would provide approximately 10,000 acres of foraging space for each apiary which would be approximately 100 acres for each colony. Please note that we say **foraging space,** not pasture. Roads, buildings, fences, woods, etc., occupy considerable space. Assuming that each 100 acres contained 10 acres of clover or other nectar plants, this should provide sufficient food for each colony under normal conditions to insure some surplus.

During a good honey season it seems safe to assume that the over stocking of territory does not occur very often. However, during a poor season it is easier to overstock.

We are of the opinion that in time to come, when the number of colonies in the U. S. A. is considerably greater than at present, it may be necessary to regulate in some way the location of apiaries, especially in areas that are said to be unusually favorable for beekeeping.

Some good locations for bees are being overlooked. There is plenty of room in the country for more bees. Our industry needs more bees and more honey. At present there is only one colony of bees for each approximately 335 acres in this country, not taking into account colonies in trees and buildings.

Royal Jelly From the Annual Report (1945) of Florida Agricultural Experiment Station we find reference to **chemical composition and physiological properties of Royal Jelly,** Purnell Project 370, by O. D. Abbott and R. B. French. We quote the following:

"Royal jelly is a bitter, milk grey jelly used in feeding very young bee larvae and constitutes the only food

of the larvae designed for queens. This food, containing fats, carbohydrates, and minerals, has a composition approximating that of evaporated milk. Royal jelly has remarkable keeping qualities. Its resistance to molds and bacteria is due in part perhaps to the high concentration of sugar, but particularly to the presence of fatty acid. Concentration of this acid in the proportion of 1 to 10,000 has a marked stimulating effect on the growth of both staphylococcus and streptococcus, but at one part per 1000 their growth is inhibited .

"Because of its bactericidal and fungicidal properties, this acid may become of value in the preservation of food. A knowledge of other constituents and properties of this jelly might throw considerable light on the essentials of both animal and human nutrition."

It is hoped that this experimental work on royal jelly may be continued as this jelly apparently has qualities that are worthy of consideration in the field of nutrition of animals and human beings.

Red Clover Acreage Increasing According to the October 31 Weekly Press Bulletin of Ohio Agricultural Experiment Station at Wooster, this year's red clover seed crop in the U. S. A. is expected to be the third largest ever harvested—a 15 percent increase over last year. In some states orchardists are now using red clover together with alsike, Ladino, and alfalfa for cover crops. Also, farmers favor red clover because it yields a crop of hay and later on in the same season a crop of seed. It has been demonstrated that keeping colonies of honeybees near fields of red clover grown for seed will increase the number of clover seeds from one to eight seeds per head to 60 seeds per head.

It is well known that honeybees do not get much nectar from red clover because the corolla tubes are too long for the tongue of the bee to reach the bottom of the tubes, except possibly the corolla tubes on the outer edge of the blossom, or, during a very dry season when the tubes are shorter than normally.

Attempts are being made to develop a strain of red clover with short corolla tubes. If and when this becomes a reality the honey crop from red clover should increase measurably. Beekeepers will await with interest the results of this experiment.

Honey Limitation Order Revoked Following the honey price decontrol on September 27, mentioned on page 636 of November Gleanings, the U. S. D. A. announced the revocation of the honey limitation order on the use of honey in manufactured goods on October 25, 1946.

What effect this will have on the present honey situation remains to be seen. At least honey prices are soaring and apparently people with money are paying high prices. The situation is aggravated by a comparatively short honey crop this year.

If we are to put any credence in reports, the sugar outlook is none too bright. However, one report states that U. S. supplies should total 8,000,000 tons which will be available early next year and that the rationing of sugar is to end in March, 1947.

Obviously, the return of sugar in normal quantity would affect honey prices—in fact the immediate future of our industry as far as honey production is concerned hangs on the sugar shortage.

Minds and Purses of Beekeepers in a Foment Mr. R. H. Kelty's concluding sentence, page 683, evidently comes from the heart. His report is worth reading by beekeepers everywhere.

One hardly knows what to exclaim. One moment we feel like saying that this is a calm preceding the storm. We hope a more optimistic reflection is justified — that it is darkest just before the dawn. Extremes follow extremes and sometimes the period in between is short. It is really years, though it seems but months, when an extensive producer was eagerly noting down every possible buyer and user of honey in a desperate attempt to try to sell what looked like a train load of honey. Today, buyers everywhere are just as eagerly noting down the the names of producers who might possibly have a little surplus honey to sell.

Just as surely as night follows day, day follows night.

American Honey Institute News Notes

Mrs. Harriett M. Grace, Director
Commercial State Bank Building
Madison 3, Wisconsin

Now that Jack Frost is making the rounds, and the whirl of Christmas shopping is well under way, it is time to give some thought to holiday hospitality. This is the time of year when friends will be dropping in to wish you a Merry Christmas. It is always a nice gesture of hospitality to offer candy and nuts, and homemade candies are doubly appreciated. Here is an easy-to-make variety certain to meet with the enthusiastic approval of everyone.

Candy Roll

One half pound sweet chocolate (cooking), 3 tablespoons honey, ¼ tablespoon salt, 3 teaspoons cold water, 1 cup peanut butter, and 3 tablespoons honey.

Melt chocolate in top of double boiler over hot water (not boiling). Add honey and salt. Stir until smooth. Add water about one teaspoon at a time, beating well after each addition. Beat until smooth and shiny.

Pour mixture on sheet of heavy waxed paper. Spread into rectangular shape. Let stand for 10 to 15 minutes. Blend peanut butter and the 3 tablespoons of honey and spread on chocolate. Roll up like jelly roll. Wrap well in waxed paper and place in refrigerator over night. Cut in slices to serve.

* * * * *

For place cards at your Christmas dinner, or for any entertaining you may do during the holiday season, cut stars from heavy cardboard. If the cardboard is not heavy enough, glue two or three thicknesses together. Paint the stars red or green, or cover with colored paper, and stand a small white candle upright in the center by fitting it into a hole cut through the cardboard. Fasten an oblong card bearing the name to the base of the candle with a ribbon of contrasting color. For extra glamour, coat the star base with colorless glue or rubber cement and sprinkle it with sparkling "snow" before the adhesive dries.

* * * * *

Whether it is holiday time or not, the family laundry keeps piling up, waiting to be washed. Even though it is cold, clothes are at their best when dried out of doors. To avoid having them freeze when the thermometer takes a nose dive, put a handful of salt in the last rinse water.

* * * * *

When there are enough new cars available for all those who want them, the cold weather problem of keeping snow from sticking to the car windshield will be adequately handled. But until that time comes, here is a tip for keeping the windows clear. Rub the outside surface of the glass with an onion which has been cut in two crosswise. The same idea holds true for keeping a clear view through your kitchen window while you are working.

* * * * *

Do you make good use of the alarm clock by setting it so that you will not miss a favorite radio program, burn a cake, or start the dinner on time?

* * * * *

Here is a very Merry Chsritsmas to you, and we hope to see you all again in 1947.

"Stings don't bother him."

Talks to Beekeepers

By M. J. Deyell

Are We Making Progress?

As the years pass by, we who have been keeping bees for a time should be making some progress and I do believe, generally speaking, that the industry is advancing. However, new problems are constantly arising. some of which are being solved while others are not being solved as rapidly as we would wish. It seems that we no sooner get one problem taken care of when another looms up. Of course this is the way with life in general.

Things Learned in 1946

As we approach the end of another season, or year, in beekeeping, we naturally recall some of the outstanding experiences of the season to determine whether or not we profited from them. Even though we were guided by what we read in the bee books and journals and what we learn from other beekeepers, at the same time a great deal of what we actually learn is the result of the trial and error method. This is one way to learn even though the tuition comes rather high at times.

(1) We Are Not So Important as We May Think We Are—Some of us may think the world couldn't get along without us. It could. Last spring when I was forced to be away from my work for a time because of illness, I found upon my return to my desk that matters had gone along quite well without me. I do not wish to minimize the importance of the individual effort of all beekeepers over the country, because, after all, the individual is important to our industry. I am simply trying to say that if some of us were to pass suddenly off the stage the show would go right on.

(2) Each Season May be and Usually is Different From the Preceding One.—It hardly seems necessary to say this. As a matter of fact this past spring was something similar to the spring of 1945 in this locality at least, only worse. I had thought during the first month or so of 1946 that inasmuch as we had had an early spring in this locality in 1945, 1946 would bring a late spring. But it was one of the earliest springs we have ever had in this section of the country. During March we had April weather. Then during May we had March weather. This made apiary management very difficult for beekeepers. Many colonies throughout the country ran dangerously low on stores—in fact, some colonies actually starved to death.

Some attribute these seemingly

A natural windbreak for the North and West.
This is one of the Root Company out apiaries.

peculiar seasons to sun spots, others say such seasons come in cycles. Let us hope that the spring of 1947 may not be a repetition of 1946.

When beekeepers have all colonies populous with bees, headed with young queens, with an abundance of stores in each hive, and with reasonable protection against the elements, such colonies are likely to survive abnormal or erratic weather conditions. Providing all colonies with a superabundance of honey in the fall relieves the minds of beekeepers during the early spring months, especially during the cool rainy spells.

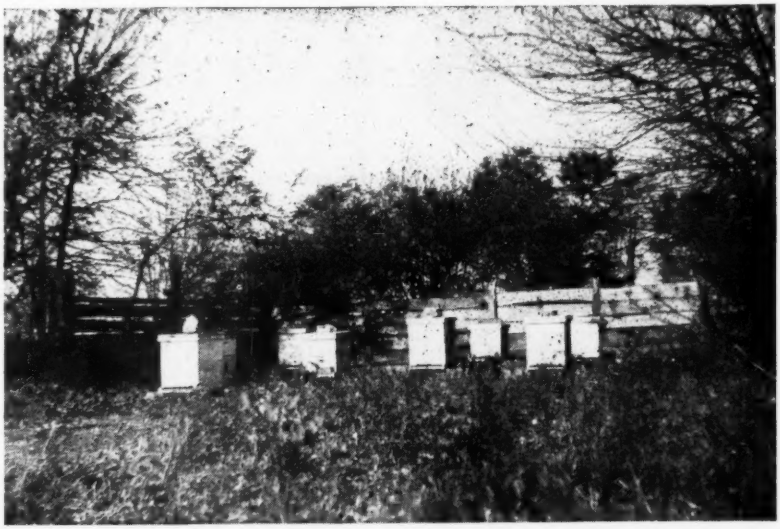
(3) Importance of Populous Colonies at the Right Time. The realiza- of this objective in beekeeping is one of the most important factors in successful apiary management. If weather conditions were the same each season the problem of having strong colonies at the right time would be simplified.

In this locality the main honey flow during 1940 started the 2nd of July and continued for about three weeks. During a few seasons prior to that time the main flow started about the second week in June. We had a cold rainy June in 1940. However, colonies had stored an abundance of honey the previous fall. They also made a small gain during the fruit bloom and dandelion honey flow in May and consequently when July came, with suitable weather for nectar secretions, the honey rolled in.

As a rule, during a poor season like this one there are a few colonies that store a considerable amount of surplus. If all colonies stored as much surplus as the few colonies, the season would perhaps be called a fair one rather than a poor one. The question is: why didn't the colonies that secured practically no surplus store as much as the few colonies that got a fair crop? Apparently the failure of colonies that stored a small crop was due to poor queens or faulty management.

I fear that a number of us are still satisfied with having hives of bees—that is, hives with some bees in them rather than very populous colonies of bees, hives simply boiling over with bees at the time the major honey flow begins. Not until we have acquired the technique of having every colony practically as good as the best, all colonies simply

(Continued on page 709)



A back-lot apiary having a fence as well as some trees to shelter the hives from winter winds.

80 Years Among the Bees

By E. R. Root

The Personnel of Some of the Early Pioneers and Their Work

From time to time in these little sketches I have referred to some of the pioneers. Outstanding among them all was L. L. Langstroth, a venerable gentleman, a man of commanding presence and one who used to visit with my father, A. I. Root, in Medina. Father consulted him often in his early research and experimental work.

Another personality was Charles Dadant, together with his son, C. P. Dadant, who were the first exponents of a brood chamber larger than a 10-frame Langstroth hive, and whose success with a large hive,

Charles Dadant

the Quinby 11-frame, interested me greatly, not because of the hive, but because of the larger size of a colony of bees necessary to produce a crop. I am here presenting the picture of Senior Charles Dadant, a period of time when, with a great deal of opposition, he and his son, C. P., contended that in order to produce a crop of honey and at the same time hold down swarming a colony of bees should be much larger than those that could be reared in a single Langstroth brood chamber. I've covered this already on pages 564 and 565 and need not say more at this time.

In those early days all except Langstroth wore full beards, for that was quite the fashion. My father never shaved after he became sixteen years of age, and this was also true of Mr. Dadant, as you will see by his picture.

I now want to introduce you to another bearded gentleman, G. M. Doolittle, of Borodino, New York, a man who was a prolific writer from 1874 to 1916, a queen breeder, and a very close follower of bee nature. Beside the series of articles that he wrote for the American Bee Journal and Gleanings in Bee Culture, he developed two ideas which he elaborated and incorporated into his book "Scientific Queen Rearing". In this little volume he laid the very foundation of queen rearing methods now used universally throughout the United States if not the entire world. Instead of using queen cells cut out from various portions of the hive, he showed how to make artificial cells or cups into which he grafted young larvae in a bed of royal jelly. While Doolittle was not the first to develop the idea of artificial cell cups, he worked out a system of queen rearing which was accepted and adopted by Mell Pritchard, Jay Smith, and James W. Bain. Practically all queens reared by queen breeders today are reared on the Doolittle plan.

Mr. Doolittle went farther, showing how to rear queens under the supersedure impulse, in an upper story with a laying queen in the lower part of the hive. These methods were all published in his book.

The Origin of the Food Chamber Principle in Beekeeping

Mr. Doolittle's second basic idea was in the development of the food chamber principle, almost universally adopted by commercial beekeepers. This was further elaborated by George S. Demuth while employed in the U. S. Dept. of Entomology, Washington, D. C.

Mr. Doolittle found that early in the spring he could greatly increase the size of his crop by putting on a half or full depth super of buckwheat honey. This enabled him to build up enormous colonies and to

G. M. Doolittle speaking at a bee meeting.

produce large crops of honey.

George S. Demuth, quite independently, and without the knowlege of what Doolittle had done, used supers of honey that he put on the colonies in the fall, not in the spring. He called this his automatic feeder. He exploited this during the first World War, explaining how to increase or double crops of honey.

In all of his articles Mr. Doolittle stressed the great importance of following nature. To that end he believed that a cubicle hive (Gallup) was better than the shape of the long flat Langstroth of the same cubic capacity.

Mr. Doolittle was pretty sound in all of his statements concerning general bee behavior but in only one place can I show where he made a mistake. He believed in cellar wintering — an underground cellar (not under a building) built in a side hill, heavily covered with earth. To that end he argued that he could control temperature. He wintered his bees there, and when I called on him along in the 90's there were four inches of dead bees in that cellar. I asked, "Mr. Doolittle, do you call this good wintering?" "Well", he replied, "the colonies are all alive, what more can I ask?"

We, at Medina, demonstrated that we could winter bees, some weak and some strong colonies, without having dead bees accumulate on the cellar floor. At the end of March one could walk over that floor and not step on a single dead bee. I shall have more to say on this in a future article.

I present a picture of Mr. Doolittle as he appeared at the Philadelphia convention that was national in its importance, delegates coming from every state in the Union and some from Europe. Doolittle, at this meeting, was called on often, and we find him standing here talking to the general audience. He, like Langstroth, had a commanding presence, was a fluent and easy speaker, and so convincing that he could make any audience believe, if necessary, "that the moon was made of green cheese."

INDEX TO 1946 GLEANINGS

The general index to the 1946 Gleanings in Bee Culture is ready for distribution. It is printed in leaflet form, and we will be glad to mail a copy on request.

JUST NEWS

(Continued from page 689)

Mackensen
Commercial User—
As Seen by the Lab.—Jas. I Hambleton

10:45 Agricultural Research Act of 1946 and Its Application to Beekeeping
(Dr. P. V. Cardon, director of the Agricultural Research Administration has been invited address us.)

11:30 American Honey Institute
Mrs. Harriett M. Grace
Lewis Parks

12:00 Luncheon Meetings
Resolutions Committee
Nominating Committee

1:00 Report of Nominating Committee

1:10 Soil Conservation and the Honeybee
(Dr. Bennett, head of the Soil Conservation Service, has suggested Verne E. Davison, Regional Biologist of the Southeastern Region, and he has been invited.)

2:00 Beekeepers' Rights Committee Report

2:15 Solving the Poison Problem Through—
Research—Dr. J. E. Eckert
Education—Woodrow Miller
Legislation—
Enforcement—

3:30 Honey and Pollen Plants Committee Report

3:45 The Honey Plant and Pollen Pollination Program for All America
R. B. Willson

4:30 Report of Clearing Committee

6:30 Banquet
Dr. E. F. Phillips, Toastmaster

Friday — January 17

9:30 Honey Grades Committee Report

9:45 Report of Resolutions Committee

10:15 Election of Officers

11:00 Sulfa Drugs
Their Use—L. Haseman
Their Misuse—
Commercial Use—G. H. Cale
The Hangover—James Gwin

1:30 Executive Committee
Such other committes or groups as care to meet

* * * * *

The Indiana Beekeepers' Association will hold a meeting January 4 at Purdue University, Agricultural Building, during Agricultural Conference week. Some outstanding speakers will appear on the program.

* * * * *

The annual meeting of the **Pennsylvania State Beekeepers' Association** will be held on January 15 and 16 in the State Farm Show Building, Harrisburg.—H. M. Snavely, Sec.

* * * * *

A big black bear's love for honey led him into E. H. Newell's apiary at Gibson, New Hampshire, early one morning recently, where he destroyed 16 frames of brood and honey. Mrs. Newell discovered the bear and called her husband but when he arrived the bear had ambled off into the woods.

* * * * *

The New Rochelle Beekeepers' Association will have a joint Christmas party and meeting on Sunday, December 15, 1946, at 2:30 P. M. at the Odd Fellows Hall, 20 Lockwood Avenue, New Rochelle, N. Y. A guest speaker is expected and educational films will be shown following the meeting. Santa Claus will be there to distribute gifts and to greet all those present. Come one and all and enjoy the fun!—B. F. Miller, Publicity.

* * * * *

J. E. Marchant, a well known beekeeper and queen breeder of the South, passed away in Orlando, Florida, September 28.

* * * * *

Tim Tietsema, well known beekeeper and honey packer of Oviedo, Florida, passed on September 10. A son-in-law, Philip M. Packard, will carry on the business.

* * * * *

The Bronx County Beekeepers' Association will hold its Christmas meeting on December 8, 1946, at 2:30 P. M. as guests of Mr. H. Wilde, 30 W. 190th St. Santa Claus will be at the door to welcome and present to all a Christmas token. Mr. Wilde has a ballroom large enough to hold over 200 people, so bring all the kiddies along and let's make this a "Merry Merry Christmas". An extra present to every child that attends. —Sam Roberts, Sec'y.

* * * * *

"The Relationship of Moisture Content and Yeast Count in Honey Fermentation," a reprint from **"Scientific Agriculture"** of the Experi-

mental Farms Service at Ottawa, Canada, by W. A. Stephen, is of interest. Over 700 samples of Canadian honey were used in experiments. Under laboratory storage conditions about 25% fermented within a year. Increase of fermentation of samples was greatest in honeys of from 17 to 18 % of moisture. For each increase of 1% in moisture content yeast count may be expected to increase about 5 fold. Both yeast count and fermentation are influenced by the length of time which honey takes to granulate.

* * * * *

The Texas Beekeepers' Association and Texas Beekeepers' Auxiliary held their annual meeting at Hotel Washington, Greenville, Texas, June 10-11, 1946.

A fine program was presented which included several out of state speakers. The meeting was well attended and much enthusiasm was shown.

Officers elected for the coming year are: J. Claude Wilson, North Pleasanton, President; Jas. Petty, San Angelo, Vice-president; W. C. O'Neal, Emhouse, Secretary-treasurer. The Auxiliary elected: Mrs. Hugh Shofner, Greenville, President; Mrs. Jas. Petty, San Angelo, Vice-president; Mrs. Howard Weaver, Navasota, Secretary-treasurer.—A. H. Alex, Acting Secretary.

* * * * *

High Lights of the Illinois Meeting

The State Beekeepers' Meeting held at Springfield, Illinois, on November 8th and 9th was one of the best ever. There wasn't a dull moment.

I did not arrive in time to take in the forenoon sessions of the first day but did hear the most of Dr. Haseman's talk on sulfa drug. He wished to have it thoroughly understood that the report was a progress report and not a completely finished project. The speaker said that he had received letters from some foreign countries inquiring about sulfa. Dr. Haseman is of the opinion that powdered sulfathiazole sodium, one half teaspoon or three quarters of a gram to a gallon of syrup fed to bees, is effective.

At present the bee inspection work in Missouri is under the State Plant Board. Beekeepers can pay for inspection but no regular inspection is carried on. Dr. Haseman says that he hadn't seen any colonies that wouldn't respond to the sulfa treatment and he is convinced that sulfa will clean up AFB if given a chance.

Mr. Killion, State Apiarist of Illinois, said that some beekeepers do not carry out instructions to the letter and he is finding disease. He favors feeding sulfa as a preventative but he has to burn AFB if and when found. One feeding of sulfa in the spring should help to fortify colonies against disease but would not necessarily guarantee disease free apiaries.

Professor Hackleman of the Crops Extension Department of Agronomy of the University of Illinois gave some interesting information on the clover situation in that state. As stated editorially in this issue work is being done along the line of shortening corolla tubes of red clover and this project seems to have promise of being successful. Professor Hackleman mentioned Ladino as being used quite generally, also bird'sfoot treefoil, a perennial legume, seems to have promise as a honey plant. Sweet clover has decreased in acreage partly because of the weevil which comes in cycles. The growing of legumes is so important for soil enrichment that their return to the regular crop rotation program is practically assured for the future.

Glenn O. Jones of the National Federation of Beekeepers' Associations, Atlantic, Ia., told of the work being done by the Federation, in the interest of beekeepers the country over. It was largely through the efforts of the Federation that decontrol of honey prices became a reality. The Association is cooperating with various committees and organzations for the advancement of the beekeeping industry.

Mrs. Harriett Grace at the American Honey Institute gave an inspiring address following the banquet. Fourteen thousand tons of paper went into printing the "Old Favorite Cook Book". New books and leaflets on honey are appearing periodically. A book entitled "New Favorite Honey Recipes" is about to appear

Dr. M. Fishbein of the American Medical Association is planning to write a series of syndicated articles on honey, which should increase consumer demand.—M. J. Deyell.

Buy and Sell Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 10 cts. per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Manufacturers of Bee Supplies, Onsted, Mich.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C. O. D. terms except where the buyer has thoroughly established his credit with the seller.

WANTED—White and amber honey, any amount. D. F. Treap, 3f6 Keenan Ave.' Cuyahoga Falls, Ohio.

WANTED—EXTRACTED HONEY—Clover or light amber C. H. Denny, 483 Moody Street, Akron, Ohio.

HONEY & BEESWAX—Highest prices paid. Mail Samples. Advise quantity. BRYANT & SAWYER, LOS ANGELES, CALIFORNIA.

WANTED—HONEY. Strained, chunk, or section. No amount too large nor too small. Top price. Spot cash. Lose Brothers, 206 East Jefferson Street, Louisville 2, Ky. Call JA 1015 collect.

CASH FOR YOUR HONEY—Extracted or comb. Regular trade, send sample. 60-lb. cans furnished if desired. W. R. Moomaw, Stone Creek, Ohio.

HONEY WANTED—All grades. Carloads or less Also beeswax. Pay top prices. H. & S. Honey & Wax Co., Inc., 265-267 Greenwich Street, New York 7, N. Y.

HONEY WANTED—All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 1360 Produce St., Los Angeles, Calif.

WANTED — Clover extracted or comb honey, any quantity. C. Jankowski, Prairie View, Illinois.

WANTED—Light extracted honey, clover preferred, in 60's. J. Jones, 115 West 82nd St. New York 24, N. Y.

HIGHEST cash return made the day we receive your beeswax. Write for shipping tags and quotations. Walter T. Kelley Co., Paducah, Kentucky.

WANTED—Honey, extracted or comb. Mail sample quote price. SEIFERT & MANN, 106 South Water Market, Chicago, since 1889.

WANTED—10 cans light or light amber honey. Klements, Huntsburg, Ohio.

HONEY WANTED—CARLOADS ONLY. WHITNEY HONEY COMPANY, PUYALLUP, WASHINGTON.

WANTED—All grades of honey, any amount. No ceiling. Write us before you sell, we pay more. Cash waiting. Honeymoon Products Co., 39 East Henry Street, River Rouge 18, Mich.

WANTED—Pure aster honey, Will pay top price. Robert W. Lane, .Greeneville, Tenn.

WANTED—HONEY, willing to pay better than average price for top quality. E. J. Cope, Attleboro, Mass.

Will pay highest prices for comb and extracted honey. Louis Kirkwood, Box 142, Bristow, Oklahoma.

HONEY WANTED—Clover; goldenrod; and white aster in 60's. C. Klabuhn, Conneaut, Ohio.

FOR SALE

HONEY LABELS — Improved designs, embodying color balance, simplicity, and distinction. Please send for free samples and prices. C. W. AEPPLER COMPANY, OCONOMOWOC, WIS.

QUEENBEE PAINTING OUTFITS, $1.00; colony records, 10-15c postpaid. Southwick Apiaries, Waban, Mass.

SAVE MONEY by letting us work your wax into wired regular comb foundation. Large catalog describes everything. You pay only wholesale factory prices as we have no agents. Walter T. Kelley Co., Paducah, Ky.

WRITE FOR CATALOG — Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies, Onsted, Mich.

FOR SALE—One 4-frame honey extractor, pre-war, never used. B. H. Blackburn, Sycamore, Rt. 1, Ohio.

YOUR WAX worked into high grade brood foundation for 17 cents a pound, 100 pounds $14.00. Fred Peterson, Alden, Iowa.

WRITE FOR LOW CASH price glass jars and 5 lb. tin pails. Complete stock. Prompt shipment. Roscoe F. Wixson, Dundee, N. Y.

FOR SALE—500 Modified Dadant hives with metal covers and inner covers, no frames, in good condition, $2.50 each. Several hundred empty 10 frame hive bodies in good condition at $1.00 each, available at Hyland Apiaries at West Elkton, Ohio, and Sylvester, Georgia.

We carry a complete stock of bee supplies and honey containers. Write for our price list. Prairie View Honey Company, 12303 12th Street, Detroit 6, Mich.

CLIP QUEENS without handling. SIMPLEX TRAP removes queen from hive, holds her in position for clipping elsewhere, without annoyance of flying stingers. $1.75 postpaid—free circular. Instant indispensable. $1.50 postpaid. Specify size. George Leys, 48 Drake Avenue, New Rochelle. N, Y.

WE ARE MANUFACTURING for sale our automatic 25 ton hydraulic capping press and our automatic air operated cut off saw. Write for description and prices. Hyland Apiaries, W. Elkton, Ohio.

FOR SALE—Nice clean fresh kernels from Tennesssee black walnuts, $1.00 per pound postpaid. Mrs, Maude Davis, Persia, Tenn.

FOR SALE—20-frame Simplicity with engine, tank, and equipment except frames for 25 hives. C. A. Walter, Route 1, Minerva, Ohio.

BEES AND QUEENS FOR SALE

Gleanings cannot guarantee that all bees advertised for sale in its classified columns are free from disease. We use all possible care in accepting advertisements, but we cannot be held responsible in case disease appears among bees sold. We suggest that prospective buyers ask for certificate of inspection as a matter of precaution.

THREE BANDED Italian queens, 1 to 25, $1.10 each; 25 up, $1.00. Health certificate with every order. Alamance Bee Company, Graham, North Carolina.

WANTED: Extracted Honey All Kinds

One can or a carload—what have you? Mail your offerings and samples to us. Prompt action. Cash on delivery.

JEWETT & SHERMAN COMPANY
Lisbon Rd. & Evins, Cleveland 4, O.
1204 W. 12th St., Kansas City 7, Mo.

HONEY WANTED

FOR EXPORT AND DOMESTIC
All Grades - Any Quantity
Foreign Commodities Corp.
100 Hudson Street
New York 13, N. Y.

Honey Containers

1 lb. jars, carton of 24	$0.88
2 lb. jars, carton of 12	0.51
5 lb. jars, carton of 6	0.45

Clifford H. Denny
483 Moody St., Akron 5, Ohio

HONEY

Wanted

A Can or a Carload

Top Prices Paid

Will furnish 60-lb. cans if desired

C. W. AEPPLER COMPANY

Oconomowoc, Wisconsin

Leather Italian Bees and Queens

guaranteed to be the most productive and gentle stock available.

We will replace any queen that fails to live up to our guarantee, or arrives dead or in poor condition.

We will book your order subject to your approval when prices are quoted. Your deposit of 10% not required until then.

Queens for balance of year, $1.00 each.

Booked for April

The Rich Honey Farms
Jeanerette, La.

Italian Queens and Package Bees

We wish to thank one and all of our customers for a successful 1946 and wish for them a Merry Christmas and a HAPPY and PROSPEROUS NEW YEAR.

We regret that we are unable to accept any more orders to be shipped before May 10th.

Prices will be announced later for packages and queens to be shipped after May 10th.

350 packages in 1940 3500 in 1946

C. W. Baker
Sumterville, Alabama

Whittle's

Leather colored Italians

Book your order now for 1947

1947 Packages with Queen

	2 lbs.	3 lbs.	4 lbs.
1-24	$4.50	$5.85	$7.20
24-99	4.25	5.55	6.85
100-up	4.00	5.25	6.50

Our bees and service will please you

G. E. Whittle
Greenville, Alabama

ITALIAN BEES AND QUEENS

We regret that we do not have any more of our fine Italian Queens, but we are booking orders for 1947.

B. J. Bordelon Apiaries
Moreauville, La.

SOLD OUT on queens this season. Booking orders for Caucasian package bees, 1947 delivery. Lewis & Tillery Bee Co., Greenville, Ala.

MILLER & EVANS—Booking package bees for spring delivery. Write. Caucasians. Miller and Evans, Three Rivers, Texas.

BREWER'S LINE - BRED CAUCASIAN QUEENS—Book your order for April delivery now. Write for prices and terms. No package bees. Brewer Brothers Apiaries, 3217-R Hawthorne Road, Tampa 6, Florida.

THANKS for 1946's business; booking 1947 queens at 1946 prices. Lange Apiaries, Llano, Texas.

MERRY CHRISTMAS and a HAPPY NEW YEAR to all our friends, from Brewer Brothers Apiaries, Tampa, Fla.

THREE BANDED ITALIAN BEES AND QUEENS. We are booking orders for 1947. Only 20% with order, balance ten (10) days before shipping date, 2-lb. package with queen, $4.00; 3-lb. package with queen, $5.00; 4-lb. package with queen, $6.00. Courville Bee Farm, Box 54, Hessmer, La.

WANTED TO BUY

WANTED—Bees and equipment. Ernest Fahlbeck, 406 South Springfield, Rockford, Illinois.

WANTED—2 or 4 frame Root reversible extractor, hand or power. Also 300 new thick top bar shallow extracting frames. Walter Marklin, Martinsburg, West Va.

WANTED TO BUY—Clean hives, supers, and bees, 400 miles central Minn. Care of Gleanings, Box 1202, Medina, Ohio.

WANTED—Going apiary outfit in Mississippi, Louisiana, or Alabama. Lis Honey Farms, R. 2, Box 536, Des Plaines, Ill.

WANTED—Good four frame reversible extractor, new or used, hand or motive power. L. M. Templeton, 790 Highland, Sharon, Penna.

100 drawn Hoffman standard brood frames. Also copy of "Honey Plants of North America". Alfred H. Irvine, Greeneville, Tenn.

WANTED TO LEASE on shares, about 300 colonies by two veterans trained under Dr. C. L. Farrar. Write Robert Kleba, 1113 W. Johnson Street, Madison, Wis.

SUPPLIES

BUY YOUR POLLEN SUBSTITUTE REQUIREMENTS NOW. We have hard-to-get Dried Brewers Yeast at 35c per lb.; 100-lb. bags, $29.50. Soybean Flour, 15c per lb.; 100-lb. bags, $8.95. F. O.B. Minneapolis. Free instructions for using included with your order. HONEY SALES COMPANY, 1806-08 No. Washington Ave., Minneapolis 11, Minn.

SEEDS

HIGH TESTING ALFALFA $20.40; Grimm $24.90; Red Clover, high quality (contains some Timothy), $19.90; Alsike $25.20; Sweet Clover, Scarified $8.25; Unhulled $4.20; New Timothy $3.75; Alsike and Timothy $6.40; Certified Brome $3.75; Korean Lespedeza $2.50; many other values. All per bushel, triple recleaned. Hybrid Corn $4.25, Guaranteed satisfactory. Free Samples—Catalog. Charles Sinn, Box 482, Clarinda, Iowa.

SEND POSTAL FOR NEW ILLUSTRATED circular on bluevine and other honey plants. Insecticides for wax moth control—other beekeeper items. Tritox Chemical Company, Washington, Indiana.

SEEDS OF HONEY PLANTS, new circular free describing forty varieties, some outstanding new plants. One packet each of fifteen desirable honey plants for $2.00 postpaid. Pellett Gardens, Atlantic, Iowa.

ANISE HYSSOP SEED, Packet, 25c; ½ ounce, $1.10. James Beecken, Route 1, Elgin, Ill.

FOR SALE—BASSWOOD TREES foot to ten feet tall. Write for circular on nectar and pollen producing shrubs, trees, and perennials. Plant for permanent nectar and pollen during the lull of early spring and fall when your bees need it the most. Nicollet County Nursery, St. Peter, Minn.

HARDY ALFALFA U. S. GROWN, $22.30 per bushel; Grim $24.50; Red Clover (25% Timothy) $20.00; Scarified Sweet Clover $8.30; New Timothy $3.50; Timothy and Clover mixed $6.75; New Fancy Brome $3.70; Korean Lespedeza $2.60; Hybrid Seed Corn, tested, $4.25. Our seeds recleaned, tested. Guaranteed satisfactory and sold subject your 60-day test. Write for Free Samples and 1947 Catalog. Hurry, scarcities exist. AMERICAN FIELD SEED CO., Dept. 382, Chicago, Illinois.

HELP WANTED

WANTED — Experienced queen yard man. Year around employment in yards and shop. We can funish a good modern home to live in. Give full information, age, experience, and salary expected in first letter. H. C. Short, Fitzpatrick, Ala.

WANTED—Helpers in our apiaries at Sylvester and Apalachicola. Georgia. Hyland Apiaries, West Elkton, Ohio.

WANTED—Experienced queen and package bee men for our apiaries. Only honest reliable men considered, no boozers. Give full information, age, experience, reference and salary expected in first letter. Good opportunity for right parties. YORK BEE COMPANY, JESUP, GEORGIA.

WANTED—A good experienced man year around work. A good deal if you know the business. C. M. Hurst, Blackfoot, Ida.

WANTED—For our southern business, capable queen breeder. Could also use man in package shaking and extracting time. H E. Crowther, Cass City, Mich.

WANTED—Experienced and inexperienced help for winter work in Texas and summer in Minnesota. J. D. Beals, 722 E. Filmore, Harlingen, Texas.

WANTED—Young man to help with bees, poultry, and pigs all year round. Give all personal information and salary expected in first letter. Use Air Mail. Hawaiian Honey Company, Box 21, Waipalm, Hawaii.

MISCELLANEOUS

EARTHWORM CULTURE — Send postcard for valuable FREE bulletin with review on "Intensive Propagation and Use of Earthworms in Soil Building". Thos. J. Barrett, Earthmaster Farms, Box 488-G, Roscoe, Calif.

Book orders for ANDERPOLL, a bee pollen substitute which contains ingredients recommended by leading authorities, plus minerals and vitamins. Free circular. Bruce Anderson, Chatham, Va.

It is never too late - -

to get the help which is available to you in daughter queens of "DR" stock. It will be a real help in your fight to control American foulbrood.

The performance of this stock is why beekeepers are placing repeat orders for larger numbers of queens. Satisfaction is what you get with the use of this stock.

This stock has been improved each year by scientific selection. No other stock can offer the quality of parentage, of rearing methods, and of apiary testing service. So why not buy those queens which will give you the greatest value?

No change in prices for this season

Write for shipping dates

Iowa Beekeepers Association
State House Des Moines 19, Iowa

The John M. Davis Strain
Bred the Davis Way
ITALIAN QUEENS

I wish to thank all my many customers for their patronage in 1946. Now booking orders for spring delivery. Sorry I could not fill all orders.

Untested $1.25
Tested 2.00

Little's Apiaries
P. O. Box 122
Shelbyville, Tenn.

Soy Flour and Pollen Traps

We are distributors of Staley's Lo-Fat, High Protein expeller processed soy flour for beekeepers. We offer the finest quality in our soybean flour and pollen traps.

KILLION & SONS APIARIES
Paris, Illinois

CARNIOLANS
CAUCASIANS
The season's heartiest greetings to all. A very Merry Christmas and a Happy and Prosperous 1947.
Albert G. Hann
Glen Gardner, New Jersey

Italian Bees and Queens
We are booking orders for Spring 1947. Only 20% with order; balance 10 days before shipping date.
Prices as follows:

2 lb. package with queen	$4.00
3 lb. package with queen	5.00
4 lb. package with queen	6.00

The Star Bee Farm
3-banded Italian Bees, Hessmer, La.

"CARNIOLANS"
Sorry, cannot accept any more orders, 1947 season.
EPHARDT HONEY FARMS
Plaucheville, La.

Italian Bees and Queens

2 lb. with queen	$4.00
3 lb. with queen	5.00
4 lb. with queen	6.00

Certificate of inspection ....d safe delivery guaranteed.
Clover Bee Farms
Hessmer, La.

MAGAZINES

THE INDIAN BEE JOURNAL—The only bee journal in India. Sample copy free. Yearly, 7s' 6d, ($1.50) International Money Order, Apply Editor, Indian Bee Journal, Ramgarh, Dist., Nain Tal. U. P. India.

WESTERN CANADA BEEKEEPER—official organ of the Manitoba Beekeepers' Association. One year, $1.00; in combination with one year's subscription to Gleanings in Bee Culture, $2.25. Wallingford Building, Winnipeg, Canada.

Read the South African Bee Journal to be conversant with conditions from far afield. Subscription 5/ per year. For further particulars, write to the Hon. Treasurer, E. E. A. Leach, Box 57, East Rand P. O., Transvaal, South Africa.

THE BEE WORLD—The leading journal in Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy post free. 12 cents stamps. Membership in the Club including a subscription to the paper, 10/6. The Apis Club, L. Illingsworth, The Way's End, Foxton, Royston, Herts, England.

DO YOU FIND it difficult to secure information about sheep and sheep ranching methods? The SHEEP AND GOAT RAISER reaches more sheepmen with more information on range sheep than any other magazine published. Subscription, $1.50. Hotel Cactus, San Angelo, Texas.

Package Bees for '47
1. **Prompt fast delivery**
2. **Uniform top quality**
3. **Fair price**

Eugene Walker
Gridley, California

Protect your future. Buy your extra Savings Bonds now.

ITALIANS! QUEENS! CAUCASIANS!
Daughters of Queens bred for Resistance — Bred to Italian Drones
All three races bred in separate yards
2-lb. package bees with queen, $5.00; 3-lb. package bees with queen, $6.25.
Extra Queens, $1.50 each. Booking orders for 1947
OVER 25 YEARS A SHIPPER IN U. S. A. AND CANADA
Sulfathiazole used in feed at no extra cost to you
MASTER MIX POLLEN made from Soybean flour, Cottonseed meal, Brewer's yeast, Skim milk, Natural pollen, Invert sugar, and Sulfathiazole. 10-pound pail, $2.50; six pails, $13.50; Send for FREE CIRCULARS.
BLUE BONNET APIARIES, Rt. 2, Box 23, WESLACO, TEXAS

LEATHER COLORED ITALIAN QUEENS
MIDDLE TENNESSEE APIARIES
1 to 25, $1.25; 26 and up, $1.10—From Imported Strains.
¼ books orders. Balance before shipping. All queens clipped and by air mail at no extra cost. (All Queens after June 15, $1.00)
J. B. TATE & SON
1209 No. 4th St., Nashville 7, Tenn. Tel. No. 34509M

1947 PRICES 1947

Highest Quality Package Bees
Select Three-Banded Italian
Queens of our Own Production

Quantity	1-11	12-99	100-up
2 lb. pkg. w/q.	$4.35	$4.20	$4.00
3 lb. pkg. w/q.	5.35	5.20	5.00

All packages shipped Express Collect. $1.00 per package will book your order.

QUEENS, less than a dozen, $1.50 ea.; 12 to 99, $1.35 ea.; 100 or more, $1.25 ea. Parcel Post Prepaid.

Full Weight Packages Young Laying Queens Live Delivery and Satisfaction Guaranteed

JOHN C. HOGG, Apiarist
Tifton, Georgia

Complete Commercial Outfit For Sale

We are offering our entire outfit of 500 colonies and extracting equipment. Wish to sell all or part for cash. Inspection certificate furnished.

L. S. Griggs & Son
711 Avon St., Flint 3, Mich.

Queens of the Golden West
Buy Western-bred queens and package bees for best results. We are now booking orders for spring 1947.

CLIFTON APIARIES
Oroville, Box 684, California

Protect your future. Buy your extra Savings Bonds now.

We Recommend

Root QUALITY
BEE SUPPLIES

For Michigan

Anticipate your needs for 1947 NOW and order early.

We'll do our best to give you good service on items as they are available.

We now have a good stock of Honey Containers.

Write us about our new all brass honey jar filling valves.

We Want Your Beeswax
Paying 46c for dark; 48c for light.

From "Soup to Nuts"—
if we don't have it, we'll try and get it for you.

M. J. BECK CO.
Successor to M. H. Hunt & Son
510 No. Cedar St. Box 7
Lansing 1, Michigan

QUALITY ITALIAN PACKAGE BEES AND QUEENS for 1947

Quantity	1-2	3-29	30-98	99 & over
2 lb. package and queen	$4.50	$4.30	$4.15	$4.00
3 lb. package and queen	5.50	5.30	5.15	5.00
Queen only	1.50	1.40	1.30	1.25

For queenless packages, deduct price of queen. Packages F. O. B. Queens postpaid. Deposit, $1.00 per package at booking, remainder due prior to shipping.

GIRARDEAU APIARIES
Tifton, Georgia J. H. Girardeau, Jr., Mgr.

HONEY WANTED

Highest prices paid in CASH. Sell us your Honey for use under the AIRLINE label, famous for years. Write at once giving quantity, price, etc. If you care to wire or telephone, do so at our expense.

MAX AMS, INC., 376 Greenwich St., New York, N. Y.

Italians
Bees and Queens for 1947
Dark three-banded strain
that are good producers

2 lb. pkg. with queen	$3.85
3 lb. pkg. with queen	4.85
Extra queens	1.10

$1.00 deposit required on each package booked.
A. M. Peach, Baldwyn, Miss.

Gaspard's Quality Italian Queens and Package Bees

We are booking orders for Spring 1947 delivery. Only 20% with order, balance 10 days before shipping time. We guarantee live arrival.

Prices as follows:

	1-49	50-up
2 lb. pkg. with queen	$4.00	$3.75
3 lb. pkg. with queen	5.00	4.75
4 lb. pkg. with queen	6.00	5.75
5 lb. pkg. with queen	7.00	6.75

Queens, $1.25 each; 50 or more, $1.15.
J. H. Gaspard, Hessmer, La.

Honey and Beeswax Wanted
We are ALWAYS in the market paying best market prices
Send for our 1946 price list on bee supplies
Doing business since 1858
The Fred W. Muth Co.
229 Walnut St., Cincinnati 2, Ohio

CLASSIFIED ADVERTISEMENTS

RABBITS

ORIGINAL GIANT CHINCHILLA RABBITS. Prolific. Profitable. Most valuable fur. Big demand. Delicious meat. Markets furnished. Willow Brook Farm, R129, Sellersville, Pa.

FOR SALE—175 two story colonies and extracting equipment for 300 colonies; 300 or more newly painted hive bodies with frames and full sheets that have not been used.Ray L. Kline, North Manchester, Rt. 3, Indiana.

FOR SALE—Bee outfit of 550 colonies at $34.00 each with equipment for running. Also large well furnished house and a five thousand dollar bee shop including nearly five acres of land in choice location across the street from grade and high school building in town of 1500 population. House, shop, and land valued at $20,000. Bees in deeps, with 4 shallows as equipment, mostly 6-inch depth supers. They are wintered mostly in two story deeps or a deep and shallow and have between 50 and 60 lbs. for wintering stores. However, we allow only one deep and four shallows with the hive for equipment. H. E. Crowther, Cass City, Mich.

BEEKEEPING FOR VETERANS

(Continued from page 708)

for 48 months, as a disabled veteran is entitled to 48 months of training. Income limitations will again determine subsistence allowance the veteran will receive. For example, if the beginning wage for a disabled veteran were $100.00 per month and the skilled wage for that objective were $250.00 per month. the veteran would receive full subsistence until such time as his earnings plus his subsistence exceeded $250.00, and then his subsistence would be reduced until earnings plus subsistence exceeded $250.00.

The approval and administration of the training program for the disabled veteran is taken care of by the Veterans Administration. Supplemental instruction is not necessary if adequate instruction is available in on-the-job training.

It is my hope that I have aided the beekeeper and the veteran in getting a clearer concept of the on-the-job training in beekeeping for veterans as administered by the Veterans Administration. Veterans needing further information may write me direct. Oour committee is glad to serve you.—Veterans Rehabilitation Committee, National Federation of Beekeepers' Associations. Elmer Carroll, Chairman, Rt. 5, Box 181, Lansing, Mich.

HOLLOPETER'S
Hardy, hustling, honey-gathering Italian queens, Northern bred from selected stock.
Shipping season, May 20-November 20
Untested queens balance of season, $1.00 each.
White Pine Bee Farms, Rockton, Pa.

10,000 PACKAGES

ITALIAN BEES WITH QUEENS

While they last. Booking is heavy.

5,000 Extra Queens

3 lb. Packages with Queens	$5.00
2 lb. Packages with Queens	4.00
Extra Queens	1.25

We Serve to Serve Again

SUNNY SOUTH APIARIES

Marksville, La. **I. Clark, Prop.**

TALKS TO BEEKEEPERS

(Continued from page 697)

boiling over with bees of the honey gathering age, at the right time, will we begin to secure the crops that are usually available.

(4) Sometimes We Blame the Lack of Surplus Honey on the Locality. In some instances the locality or location is not what it should be. Possibly some beekeepers who are experiencing a series of failures, even though they have populous colonies at the right time, should investigate new beekeeping territories.

During the past season some seemingly mysterious conditions prevailed that reduced the honey crop. Some blamed it on the atomic bomb. Others said it was due to lack of nectar. In some regions there was a lack of legumes, especially the clovers that are essential for a good crop.

Our soils are deficient in some elements necessary for producing clovers and other honey plants with a high sugar content. It stands to reason that bees are not going to waste their time gathering nectars that have a low sugar content when they can obtain nectars with high sugar content.

(5) Advantages of Being Near a Fall Source of Honey. Since the decline of sweet clover in the western part of Ohio some beekeepers in that area have moved their bees to eastern Ohio after the summer flow to take advantage of fall honey plants such as goldenrod and aster. As a matter of fact, these honey sources have been the salvation of some commercial beekeepers.

If it were possible to have our bees somewhere on the dividing line between clover regions and fall honey regions, this would save a great deal of moving. Migratory beekeeping is quite expensive, especially when crops are relatively small. If we were sure of securing fair crops each season, it would actually pay to move bees from summer to fall locations.

(6) Beekeepers are Optimists. Even though some of us secured a very small crop, and in some cases practically no surplus this year, we look forward to 1947 with the hope that it may be that banner year.

Announcing 1947 Prices on Package Bees

Because of the time between now and delivery and the uncertainty of conditions in general, quotations have been hard to establish. However, considering rising costs of labor, lumber, wire, nails, sugar, cans, and all other supplies necessary for the production and shipment of bees plus the guarantee of live arrival, we have established the following prices for 1947:

2 lb. pkg. with queen, .. $4.30, any no.
3 lb. pkg. with queen .. 5.50, any no.
Larger pkgs., add per lb. 1.20
Queenless pkgs. deduct $1.40 per pkg.

10% deposit with order—balance 10 days before shipment is due. If you have placed order confirm with deposit at once.

"They Satisfy"

Rossman & Long

P. O. Box 133 Moultrie, Ga.

Bees and Queens for 1947

2000 pkgs. for April and May
—10,000 extra queens

Book now and be sure of your spring dates

1947 prices

Queens	$1.15
3 lb. pkgs.	4.85....any number
2 lb. pkgs.	3.85

Bayou Bee Co.

Rt. 1, Box 49, Montegut, La.

THE PRICE WE PAY

(Continued from page 658)

ture research. The red tape that binds the Bee Culture Laboratories in a straight jacket should be stripped away. If we beekeepers through our National Federation and other interested organizations are powerful enough to get honey decontrolled, they surely should be able to get these needed changes and the money appropriated to carry on the necessary research program.

We Need More Honey

It was never more apparent than it is at this time that the greatest handicap to the future of our industry is our inability to produce honey in large enough quantity. We must increase production not only in pounds per colony but in total volume. We can no longer afford to ignore any item that will lower production. Disease, both brood and adult, has reduced our honey crops in the past. AFB causes great loss and much research work has been done in an effort to control it, but Nosema has caused much greater losses of production every year but nothing has been done about it because it could not be seen or recognized by the average beekeeper. No doubt that a few years such as 1946 where little trouble was experienced will allay our fears and we will forget about Nosema until it again strikes. unless we resolve to get behind our research agencies and give them a boost. Now is the time to get that program under way.

Nebraska.

HANSON, HALL BEE COMPANY

Thoroughbred Italian Bees and Queens

Livingston, Alabama

Package Bees with Queens

Our prices for 1947 are as follows:

	1-24	25-99	100 up
2 lb. pkg.	$4.50	$4.25	$4.00
3 lb. pkg.	5.85	5.55	5.25
Extra queen	1.40	1.30	1.20

We have some good shipping dates open and would appreciate your order.

HOW VALUABLE IS THE DRONE?

(Continued from page 659)

ny of us are lead to believe. In this case, it actually improved the original stock. As this is true in other stock, it is just as true in bee breeding.

As I work in an automobile factory, I don't have the time to experiment as much as other queen breeders do. I have to time my work with the bees which makes it more difficult when raising queens. If the day is rainy when I am at liberty to experiment with control mating, then I must start all over again. Sunday is the only day I have to work with my bees. I don't like this but under my circumstances I can't do otherwise. I shall continue my experiment next season on control mating, and with the knowledge so far acquired, who knows but that some day we might master control mating in its simple form.

Indiana.

JENSEN'S

"Magnolia State" Strain Italian Bees and Queens

1947

We are booked up for all of April production of both packages and queens. but can still take some May orders. Old and regular customers PLEASE NOTE: Your customary requirements are still being considered in anticipation of unprecedented demand for packages and queens next spring. In spite of our stepped-up production schedule, we know we will have to decline much good business, with resultant loss to all concerned.

Prices, April 1st to June 1st:

	Queen	2 lb. pkg. complete	3 lb pkg. complete
1-25	$1.40	$4.50	$5.85
25-99	1.30	4.25	5.55
100-up	1.20	4.00	5.25

Jensen's Apiaries

Macon, Mississippi

Our 1947 Spring Prices

In view of increased operating costs, we have revised our price schedule as follows:

Quantity	Queen	2 lb. pkg.	3 lb. pkg.
1-24	$1.40	$4.50	$5.85
25-99	1.30	4.25	5.55
100-up	1.20	4.00	5.25

BESSONET BEE COMPANY

Donaldsonville, La.

Hardy — High Producing — Gentle

St. Romain's "Honey Girl" Italians

	1 to 4	5 to 11	12 to 49	50 to 99	100 up
Queens	$1.00 ea.	90c ea.	85c ea.	75c ea.	70c ea.

• • • • •

Prompt service. Live delivery. Certificate of Inspection.

St. Romain's "Honey Girl" Apiaries, Moreauville, La.

Announcing 1947 Prices on Package Bees

Because of the time between now and delivery and the uncertainty of conditions in general, quotations have been hard to establish. However, considering rising costs of labor, lumber, wire, nails, sugar, cans, and all other supplies necessary for the production and shipment of bees plus the guarantee of live arrival, we have established the following prices for 1947:

2 lb. pkg. with queen, .. $4.30, any no.
3 lb. pkg. with queen .. 5.50, any no.
Larger pkgs., add per lb. 1.20
Queenless pkgs. deduct $1.40 per pkg.

10% deposit with order—balance 10 days before shipment is due. If you have placed order confirm with deposit at once.

"They Satisfy"

Rossman & Long

P. O. Box 133 Moultrie, Ga.

Bees and Queens for 1947

2000 pkgs. for April and May
—10,000 extra queens

Book now and be sure of your spring dates

1947 prices

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2 lb. pkgs.	3.85

Bayou Bee Co.

Rt. 1, Box 49, Montegut, La.

THE PRICE WE PAY

(Continued from page 658)

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Nebraska.

HANSON, HALL BEE COMPANY

Thoroughbred Italian Bees and Queens

Livingston, Alabama

Package Bees with Queens

Our prices for 1947 are as follows:

	1-24	25-99	100 up
2 lb. pkg.	$4.50	$4.25	$4.00
3 lb. pkg.	5.85	5.55	5.25
Extra queen	1.40	1.30	1.20

We have some good shipping dates open and would appreciate your order.

HOW VALUABLE IS THE DRONE?

(Continued from page 659)

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As I work in an automobile factory, I don't have the time to experiment as much as other queen breeders do. I have to time my work with the bees which makes it more difficult when raising queens. If the day is rainy when I am at liberty to experiment with control mating, then I must start all over again. Sunday is the only day I have to work with my bees. I don't like this but under my circumstances I can't do otherwise. I shall continue my experiment next season on control mating, and with the knowledge so far acquired, who knows but that some day we might master control mating in its simple form.

Indiana.

JENSEN'S

"Magnolia State" Strain Italian Bees and Queens

1947

We are booked up for all of April production of both packages and queens. but can still take some May orders. Old and regular customers PLEASE NOTE: Your customary requirements are still being considered in anticipation of unprecedented demand for packages and queens next spring. In spite of our stepped-up production schedule, we know we will have to decline much good business, with resultant loss to all concerned.

Prices, April 1st to June 1st:

	Queen	2 lb. pkg. complete	3 lb pkg. complete
1-25	$1.40	$4.50	$5.85
25-99	1.30	4.25	5.55
100-up	1.20	4.00	5.25

Jensen's Apiaries

Macon, Mississippi

Our 1947 Spring Prices

In view of increased operating costs, we have revised our price schedule as follows:

Quantity	Queen	2 lb. pkg.	3 lb. pkg.
1-24	$1.40	$4.50	$5.85
25-99	1.30	4.25	5.55
100-up	1.20	4.00	5.25

BESSONET BEE COMPANY

Donaldsonville, La.

Hardy — High Producing — Gentle

St. Romain's "Honey Girl" Italians

	1 to 4	5 to 11	12 to 49	50 to 99	100 up
Queens	$1.00 ea.	90c ea.	85c ea.	75c ea.	70c ea.

• • • • •

Prompt service. Live delivery. Certificate of Inspection.

St. Romain's "Honey Girl" Apiaries, Moreauville, La.

Above photo shows a portion of one of our queen yards of 10,000 nuclei.

1947 Italian Bees and Young Queens 1947

150,000 lbs. sugar going into the production of your bees.
Money cannot buy better packages and queens.

On orders booked before Jan. 1, 1947:

3 lbs. with young laying Italian Queen	$5.00
2 lbs. with young laying Italian Queen	4.00
Extra Queens, any number	1.25

We solicit large queen orders.

Overbey Apiaries, Bunkie, Louisiana

RESISTANCE DOES NOT MEAN IMMUNITY

(Continued from page 661)

combination of the use of resistant strain queens and the feeding of sulfathiazole should enable beekeepers to keep bees in many locations formerly too badly diseased to make beekeeping profitable. We believe this new treatment has a place in beekeeping and is one of the finest contributions to beekeeping that has appeared in many years. We have always disliked the idea of the burning treatment for the control of AFB for the expense involved made beekeeping unprofitable. The shake method was sometimes unsuccessful due to the bees carrying diseased honey into the new hive. If sulfathiazole had been used during this period in starting the new colony, there is no doubt that it would have been successful. The escape method was developed on the fact that bees leaving an infected hive in a natural manner did not carry infected honey or any honey for that matter, for they left the hive with empty honey sacs, and it was 100% successful with us. We used resistant-strain queens to requeen the bees and full frames of foundation in clean hives.

We still believe in resistance to AFB just as strongly as we did two years ago, as a means of prevention, and suggest that beekeepers take all known precautions against the possible contamination of their equipment.

Holliston, Mass.

Now booking orders for 1947
Leather Colored Queens
and Package Bees
Write for prices
Lynn Williams
Rt. 3 Oroville, Calif.

Now Booking Orders for Package Bees and Queens for 1947
Italian and Caucasian Queens
Write for Prices
R. E. LaBarre
Box 172 Shasta Co.
Cottonwood, California

ANNOTATIONS

(Continued from page 690)

one like myself who took interest many years ago in the artificial heating of hives in home apiaries in order to insure a safe minimum winter temperature in cold districts. But I confess I do not find the idea practicable to the large beekeeper with out-apiaries. In my experience, good queens could be stimulated best by giving their colonies combs of emerging brood and capped honey with pollen. Even pollen candy cakes will not help by themselves in the sunny springs of Egypt. There is something more encouraging in the provision of natural stores. We have to remember that some strains of bees are late breeders in spring, following the floral nature of their country of origin. This, in my experience, applies particluarly to Alpine Carniolan bees. Should they be weak in early spring feeding, heat alone will not suffice for stimulation without nurse bees in proportion.

Special Announcement

This is to advise our friends and customers that the Newton & Lott Bee Company has effected a friendly and cordial dissolution.

We each want to thank our many friends and customers for years of faithful patronage and continue to solicit your friendship and patronage to our independent operations.

Each will operate independently hereafter under the titles of:

Newton Bee Company
Route 2
Baton Rouge, La.

George Lott Apiaries
Route 2
Baton Rouge, La.

EXTRA! Thos. C. Burleson sells Package Bee Business to Howard Foster

To my Many Friends and Customers—It has been a great pleasure to serve you the past twenty-five years, and your patronage , friendship, and understanding shall always be remembered.

Most sincerely yours,
Thos. C. Burleson

TO THE BEEKEEPING WORLD

Our fifteen years' experience in producing honey in Montana, Idaho, and Oregon gives us an understanding of the Northern producers' needs. We pledge Better Bees and Queens for Better Honey Production.

Yours for success,

FOSTER APIARIES

Box 55, Bridger, Montana — Box 239, Colusa, Calif.

YORK'S PACKAGE BEES AND QUEENS
QUALITY BRED ITALIANS for 1947

Orders are being placed rapidly for coming season, which indicates the demand will surpass past seasons. Determine your needs and place your order now without further delay. We will be fully prepared to supply highest quality bees which are so much in demand by leading honey producers who know. Quality does not cost—it pays. 1947 prices in U. S. funds.

PACKAGE BEES WITH QUEENS

Quantity	1 to 2	3 to 27	30 to 99	102 up
2-lb. package	$4.50 ea.	$4.35 ea.	$4.20 ea.	$4.00 ea.
3-lb. package	5.50 ea.	5.35 ea.	5.20 ea.	5.00 ea.
Extra queen	1.50 ea.	1.45 ea.	1.40 ea.	1.35 ea.

Queenless packages, deduct $1.15 per package

Our prices show only a very slight increase over past season. Bees are supplied in neat new cages. Certified bees from our own apiaries, state registered and state inspected. Extra queens by mail and package bees by express only. We recommend 3-lb. size packages as best all around size. If convenient, small orders cash, larger orders $1.00 deposit per package to insure order, and the balance not less than two weeks prior to shipping date. Thanking all of you for past favors and wishing more honey to you for a greater 1947.

YORK BEE COMPANY, JESUP, GEORGIA, U. S. A.

(The Universal Apiaries)

QUEENS

Productive **Vigorous**

BOOK NOW FOR 1947 1-24, $1.40; 25-99, $1.30; 100-up, $1.20.

J. WILLARD REED

1750 SANTA FE CORPUS CHRISTI, TEXAS

BETTER BRED QUEENS THREE BAND ITALIANS

We thank our many customers for their patronage this season.
We are now booking orders for 1947

CALVERT APIARIES — Calvert, Alabama

1947 PACKAGE BEES AND QUEENS 1947
ITALIANS

We are fully prepared in the way of bees and equipment to fill your orders. The demand for packages and queens is increasing and we expect an early sell out. Guarantee live delivery, full weight young queens, health certificate. 10% books your order. Balance 10 days before shipping.

Prices on orders booked before Jan. 1, 1947:

2-lb. with young laying queen $4.00
3-lb. with young laying queen 5.00
Queens 1.25

Rt. 2, Box 9 SUNKIST BEE COMPANY Houma, La.

1947 TANQUARY'S 1947

ITALIAN BEES AND QUEENS

Our shipping dates for the month of April are just about taken up, although we would appreciate hearing from you concerning your needs. We have lots of shipping dates left in May.

Place your order early. We guarantee safe arrival on bees and queens. Queens clipped at no extra cost.

PRICE LIST FOR 1947

Quantity	1 to 5	6 to 49	50 to 99	100 up
2 lb. bees with queen	$4.50	$4.35	$4.20	$4.00
3 lb. bees with queen	5.50	5.35	5.20	5.00
4 lb. bees with queen	6.50	6.35	6.20	6.00
5 lb. bees with queen	7.40	7.25	7.10	7.00
Queen	1.45	1.40	1.35	1.30
Tested Queen	2.30	2.20	2.10	2.00

Queenless packages, deduct $1.15 per package.
Queens Postpaid—Package bees F. O. B.

TANQUARY HONEY FARMS, Inc., Lena, S. C.

SEASON'S GREETINGS

Our regrets to our customers and friends whose orders had to be returned during 1946.

1947 Queens will be available in March depending on weather conditions.

We are booked up on April Packages. Look for Prices in January magazines.

Garon Bee Co. .... Phone 8614 .... Donaldsonville, La.

Three Band Italian PACKAGE BEES

Full weight, prompt shipment, young bees. State Health Certificate with each shipment. Live arrival guaranteed. Replacement or refund promptly made upon receipt of bad order from your express agent.

Our prices until June 10, 1947 in U. S. Funds.

	Each	With Queens			
	Queens	2 lb.	3-lb.	4-lb.	5-lb.
1-29	$1.10	$4.00	$5.10	$6.20	$7.30
30 or more		3.50	4.50	5.50	6.50

For queenless Packages deduct $1.10 each from above prices. If queens are wanted introduced, add $1.10 to the price of each package.

Jackson Apiaries
Funston, Ga., U. S. A.

A Thought for Next Year

With the sugar situation still acute and the demand for honey probably greater than it has ever been, we should do everything we can do to produce every pound of honey next year.

Be sure that all colonies you expect to winter have plenty of good stores, good clusters of young bees, a good queen, and adequate protection.

Then get all hives and equipment ready for next spring, and if you have any extra hives, fill them with packages. We expect the demand to be greater than ever for packages and queens, but we will make every effort to produce every one possible, consistent with our usual quality.

Let's make 1947 a Honey Year; and when you think of package bees or queens, remember that's our specialty.

THE STOVER APIARIES
Mayhew, Miss.

Modern Beekeeping

Starting with the August issue we have a new name for our magazine, which was formerly called **THE BEEKEEPERS ITEM.** We like the new name and believe that you will. The name is distinctive and it implies mechanism, the sulfa drug, and everything that is new and worthwhile that we are bringing to your attention.

We are making our magazine into the picture magazine of the industry. We are taking our readers with us on trips to bee meetings and are showing them in pictures what we saw. Every month we have worthwhile articles on various phases of beekeeping—articles that you, as a beekeeper, cannot afford to miss.

Pictured at the left is a bee pin that we are offering in connection with our magazine. This is a photograph of the pin and is approximately the same size. These are sturdy gold plated pins, fitted with a special spring tension arrangement, but no safety catch.

MODERN BEEKEEPING — 1 year with the bee pin, $1.25. Sample copy free.

Modern Beekeeping Paducah, Ky.
Walter T. Kelley, Editor

HONEY SWEETS

(Continued from page 667)

stantly. Boil slowly until a few drops form a soft ball when dropped into cold water. Remove from heat and add ½ teaspoon vanilla. Pour, while hot, over 4 cups freshly popped corn. Stir until all kernels are covered.

Honey Butterscotch Pecan Patties

Combine 1 cup white sugar, ½ cup brown sugar, ¼ cup honey, a few grains salt, and ½ cup evaporated milk. Cook to boiling point, stirring constantly, continue cooking, stirring occasionally, to soft ball stage. Remove from heat and add ⅓ cup butter. Cool at room temperature, without stirring, until lukewarm or until the hand can be held comfortably on the bottom of the pan. Then add ¾ cup chopped pecans and 1 teaspoon vanilla. Beat until candy will hold its shape. Drop from teaspoon onto waxed paper.

Honey Toffee

Mix in saucepan ½ cup brown sugar, ½ cup granulated sugar, ¼ cup honey, ½ cup evaporated milk, 1 teaspoon butter, and ¼ teaspoon salt. Boil slowly, stirring constantly until sugar dissolves. Continue cooking, stirring occasionally, to hard ball stage. Remove from heat, add 1 teaspoon vanilla and ½ cup chopped nutmeats. Pour into greased pan 8 inches square. Cut into strips when cool.

Nebraska.

GREETINGS

At this timely season we wish to voice our appreciation for your valued patronage that has contributed so much to our progress during the past year. We wish you a full measure of the season's greetings, a Happy and Prosperous New Year.

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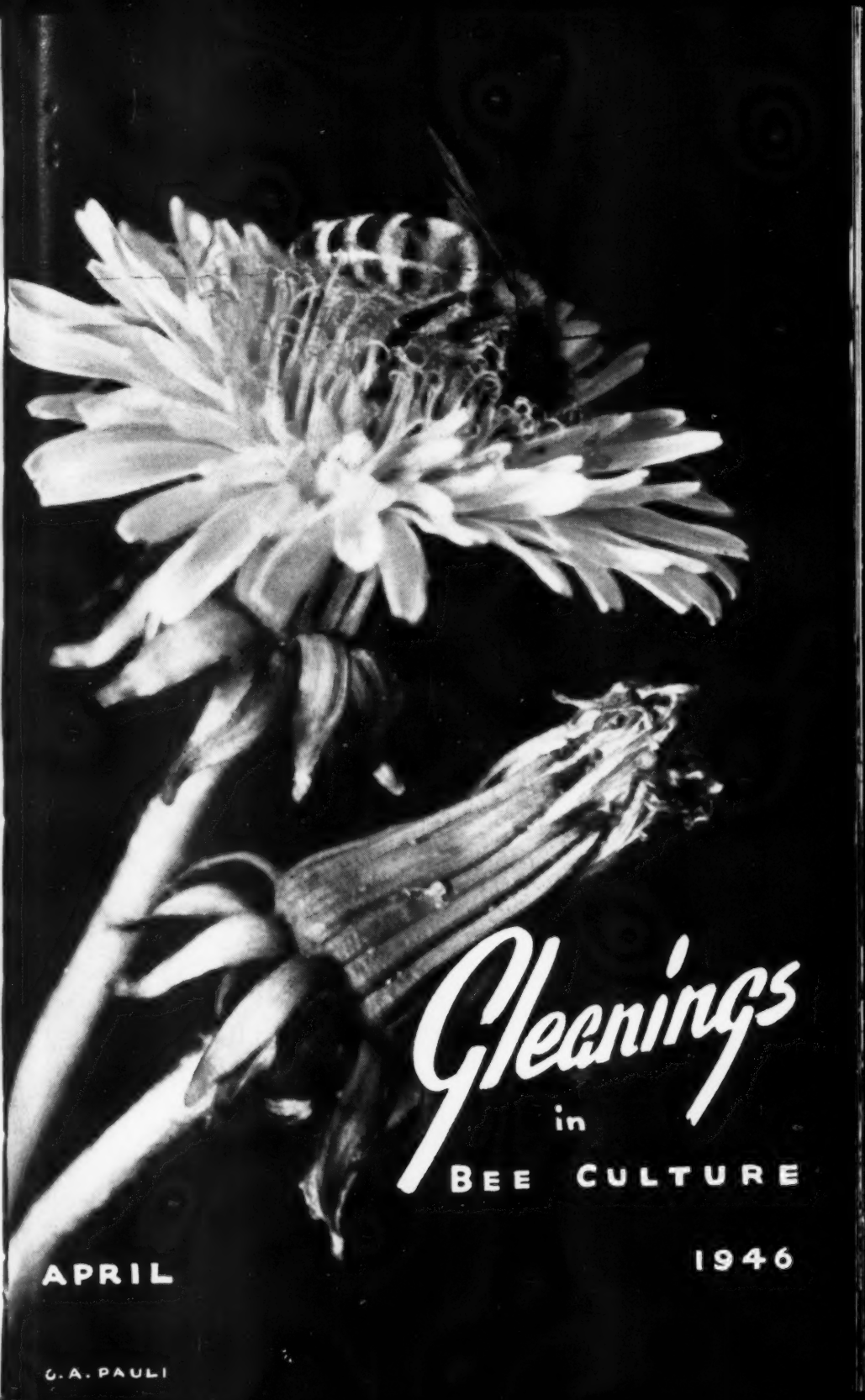
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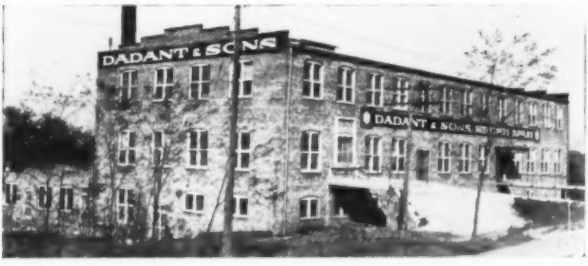

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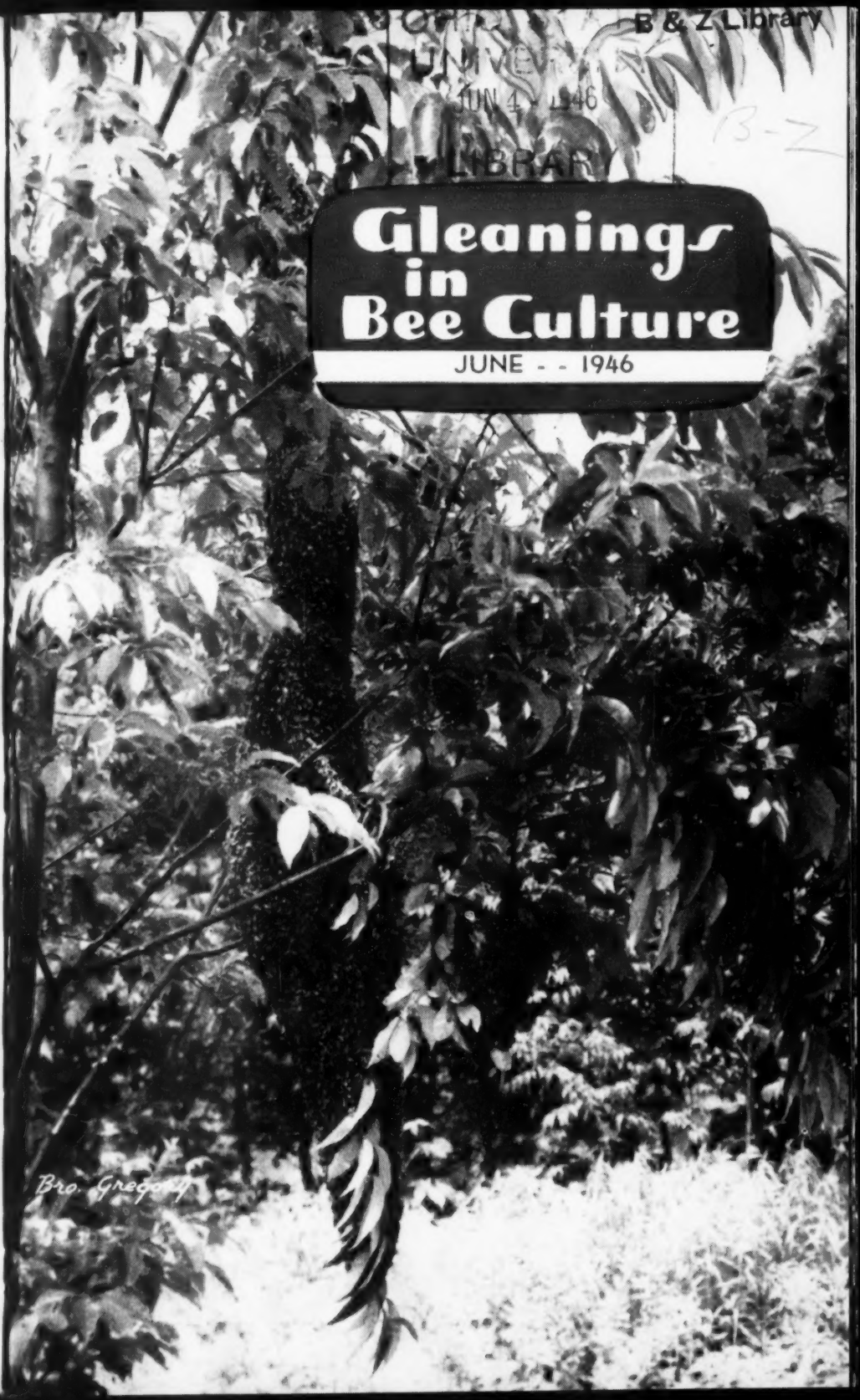

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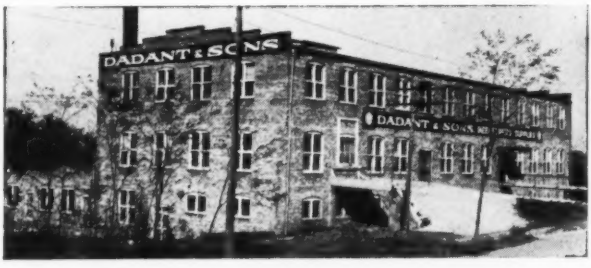

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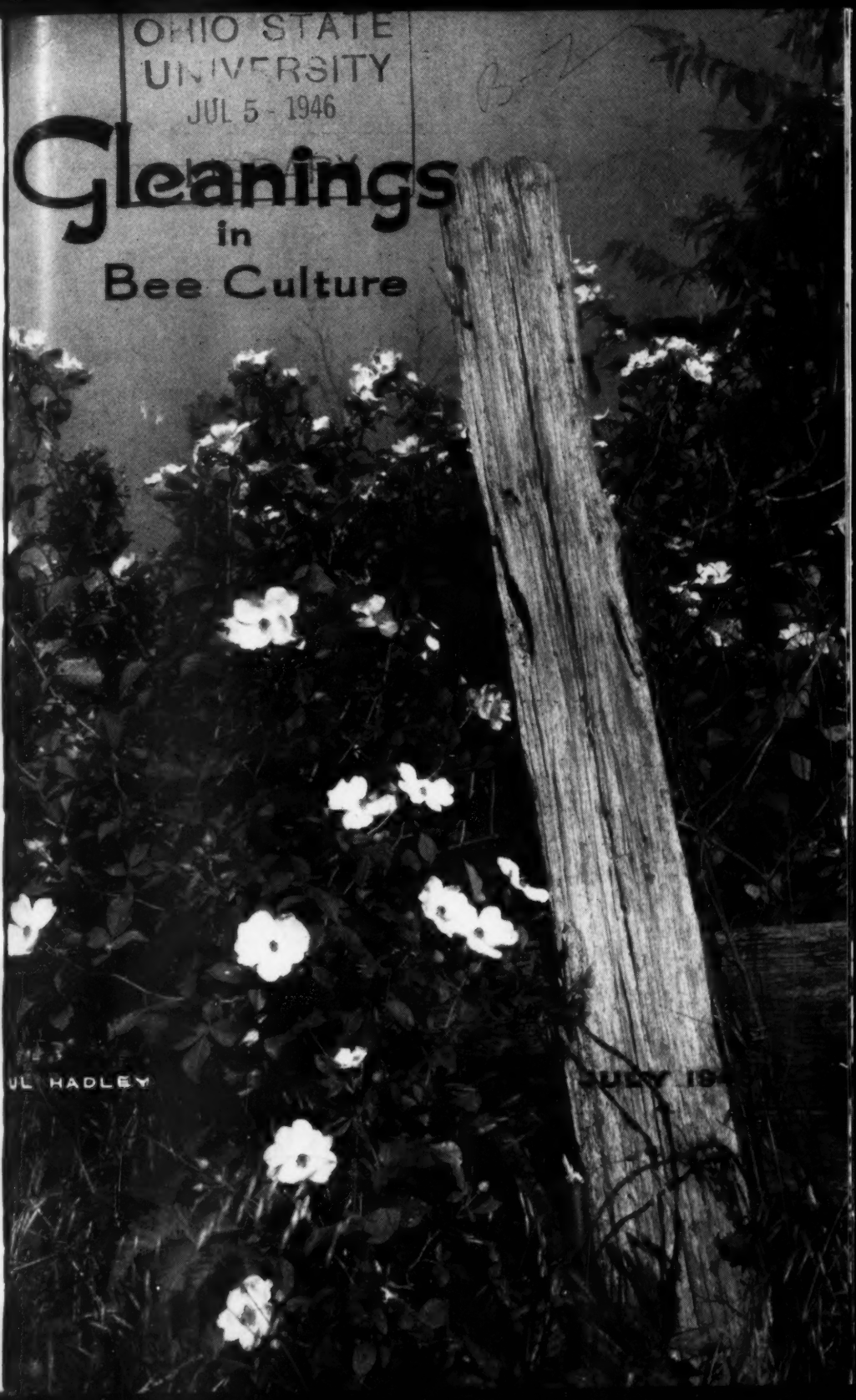

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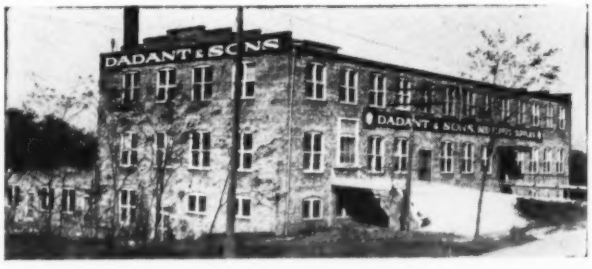

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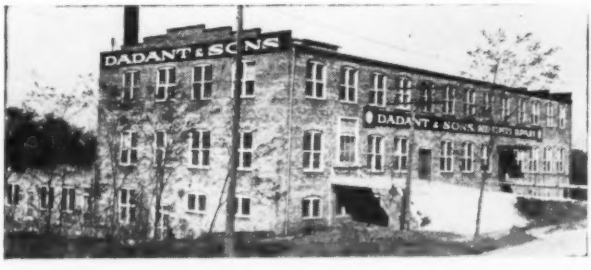

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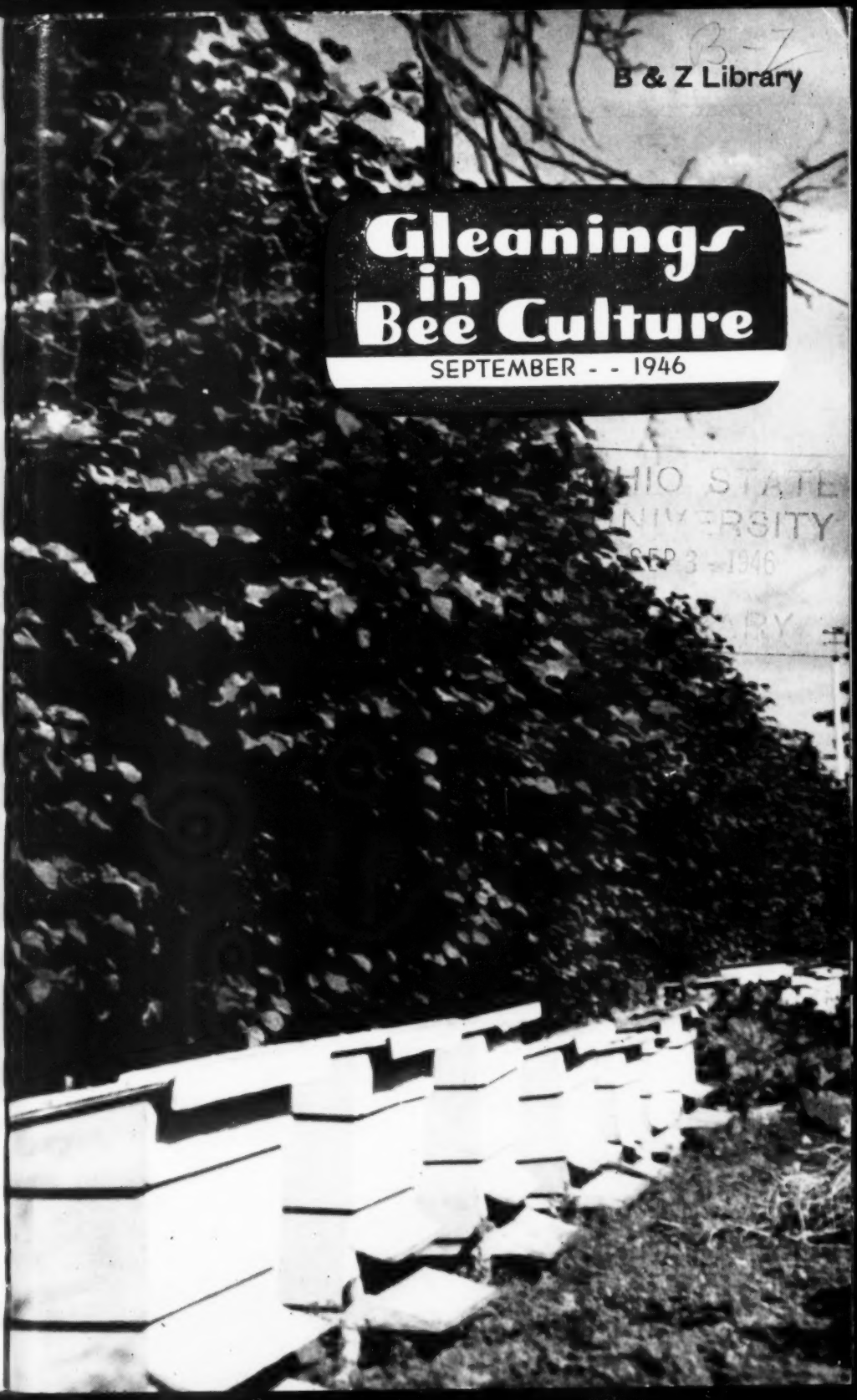

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A Quartet of Quality

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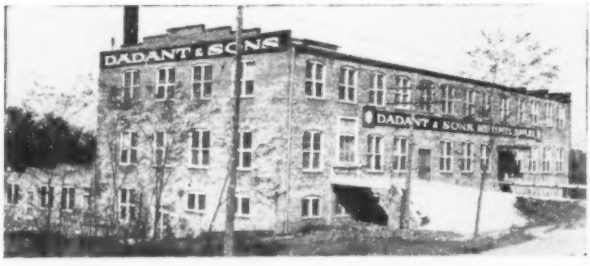

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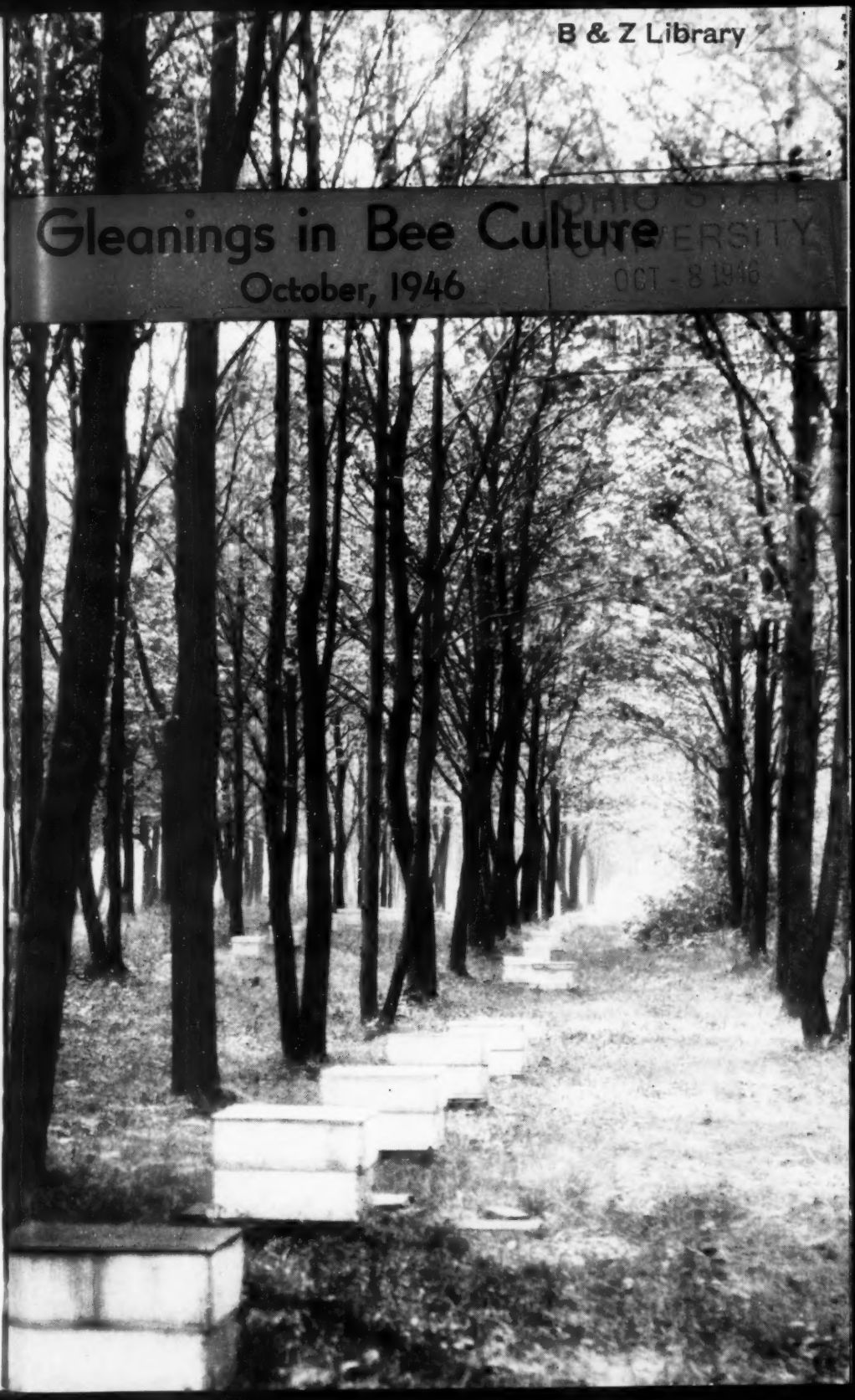

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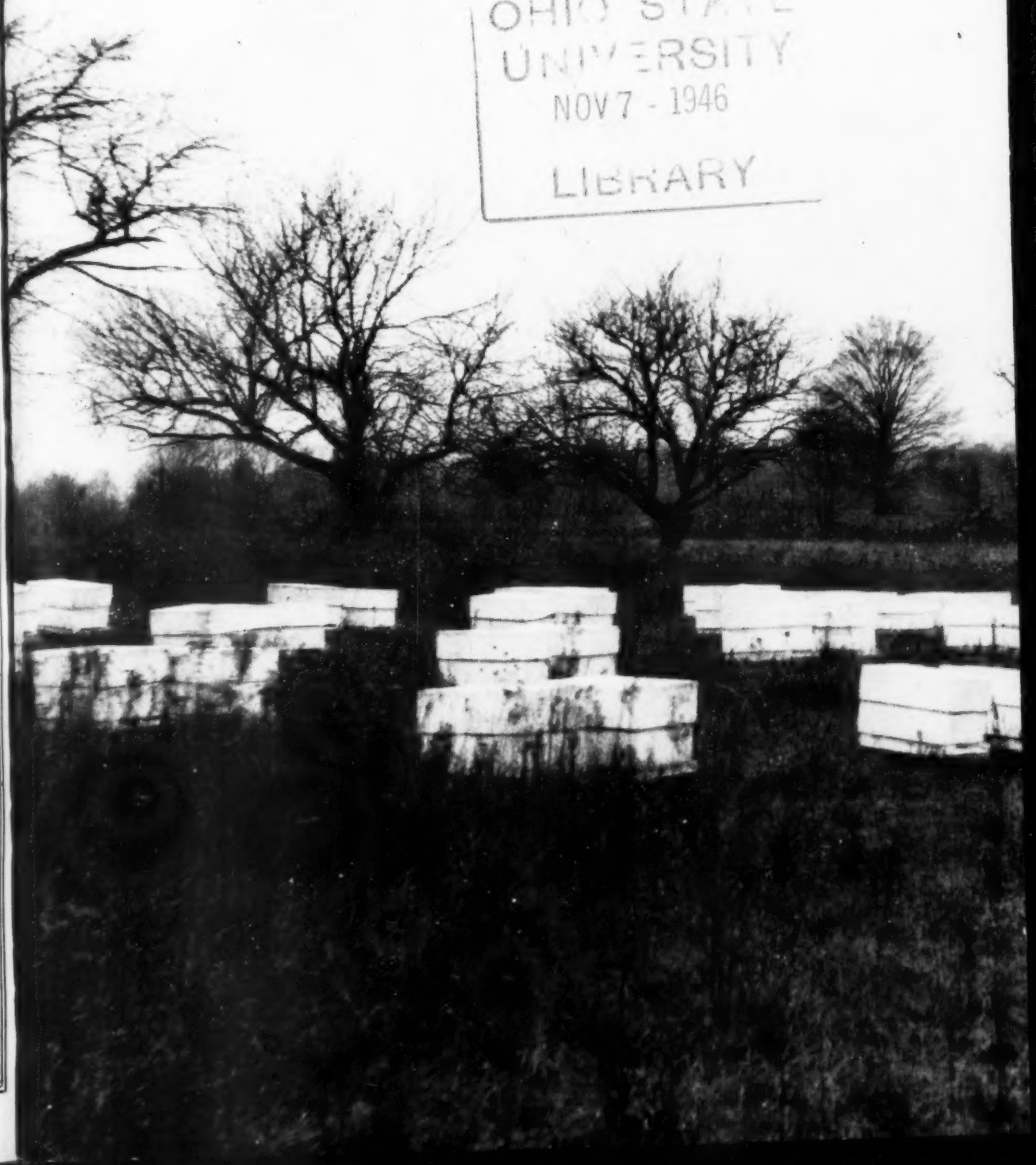

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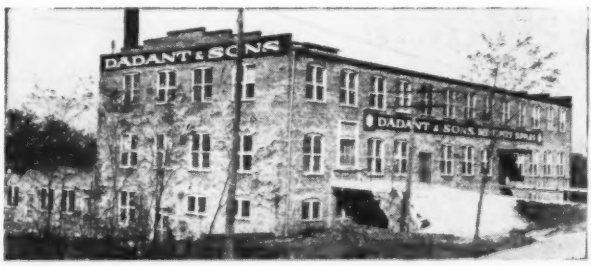

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